

Assessing How Effective Capacity Building has been in Strengthening Coordination Among CITES Enforcement Agencies in ZAMBIA

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Abstract

The illegal wildlife trade is one of the biggest dangers to biodiversity worldwide, especially in Zambia, where human activities threaten many species. In 1973, several nations developed the Convention on International Trade in Endangered Animals of Wild Fauna and Flora to combat the unlawful trade in endangered animals. This study examines how capacity training improves CITES stakeholder coordination and collaboration in Zambia to protect wildlife. A key goal of the study was to evaluate how well capacity building has improved CITES enforcement agency coordination in Zambia. The study studied Management Authority collaboration arrangements, training program performance, and stakeholder efforts to promote inter-agency coordination. We collected qualitative and quantitative data using a mixed-method approach. Interviews and questionnaires with former CITE capacity-building program participants and organizers provided primary data. This strategy assessed stakeholder collaboration and training program effectiveness. According to the report, the lack of institutional rules and collaboration mechanisms has prevented capacity building from improving CITES stakeholder coordination in Zambia. Though well-structured, training programs lacked practical elements and did not strengthen stakeholder interactions. Policy reforms and more hands-on, practical training are needed to improve inter-agency coordination. Successful CITES implementation in Zambia requires stronger collaboration and commitment from all enforcement authorities to conserve wildlife and biodiversity.

Keywords: Biodiversity Conservation, Capacity Building, CITES, Enforcement Challenges, Illegal Wildlife Trade, Inter-Agency Coordination.

Introduction

The illegal wildlife trade is a significant global issue, threatening biodiversity and accelerating species extinction [1]. The demand for wildlife products for food, medicine, fashion, and tourism, combined with habitat destruction, has exacerbated this crisis [2]. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), established in 1973, seeks to regulate international wildlife trade to protect endangered species. With 184 member countries, including Zambia, CITES

emphasizes the importance of global cooperation in combating wildlife trafficking.

Zambia is home to an estimated 7,774 species of organisms, comprising 7% microorganisms, 40% plants, and 44% fauna, with at least 316 species endemic, 174 classified as rare, and 31 endangered or vulnerable. The fauna diversity includes 3,407 species, notably 1,808 invertebrates, 224 mammals, 409 fish, 67 amphibians, 150 reptiles, and 733 birds [3]. Floristic diversity spans approximately 4,600 plant species, dominated by herbs and woody plants, with 211 endemic species. Ecosystem diversity

encompasses 16 types, predominantly forests, woodlands, grasslands, wetlands, and aquatic systems, with woodlands and forests covering 70% of Zambia, while wetlands account for about 14%. Species diversity often correlates with ecosystems; for instance, miombo woodlands and floodplains host the most mammal diversity, while montane ecosystems, though limited, have the highest number of endemic woody plants. Conversely, biodiversity is lowest in dry deciduous forests [4].

Zambia, renowned for its rich biodiversity and large wildlife reserves, faces substantial challenges in protecting its natural heritage. Zambia is in Category 3 of CITES National Legislation Project (Res. Conf. 8.4 (Rev. CoP15) and legislation to combat illegal trafficking of wildlife resources which are considered to be both plant and animal products. While Zambia is a committed CITES signatory, it grapples with enforcing regulations due to gaps in capacity, coordination, and awareness among enforcement agencies. Poaching and trafficking of species such as elephants, pangolins, and rhinos continue to threaten the country's wildlife population, undermining conservation efforts and Zambia's economic reliance on eco-tourism.

The human beings are at the center of this entire crisis, therefore requiring global collaborations with different stakeholders so that there is survival of some wildlife species which are facing critical extinction especially in Zambia and Africa at large, among them CITES and other wildlife organizations. Efforts to enforce CITES policies have often been undermined by insufficient legislative frameworks and weak inter-agency collaboration [5]. These challenges necessitate capacity-building initiatives aimed at fostering coordination among key enforcement agencies, including the Department of National Parks and Wildlife (DNPW), the

Zambia Revenue Authority (ZRA), and the Zambia Police.

The effective enforcement of CITES in Zambia is hindered by inadequate capacity, weak inter-agency collaboration, and limited resources. Despite various training initiatives, the enforcement agencies involved in wildlife protection continue to struggle with coordination. For instance, the Department of National Parks and Wildlife faces challenges in data sharing and joint inspections with the Zambia Revenue Authority at major border posts such as Chirundu and Kasumbalesa [6]. Moreover, equipment shortages and insufficient expertise in monitoring wildlife trade routes exacerbate the problem. Capacity-building programs, although conducted by international conservation organizations, have often lacked sustained follow-up, making it difficult to gauge their long-term impact [7]. Additionally, inadequate funding and inconsistent communication among agencies hinder the development of robust enforcement mechanisms.

While several training programs and stakeholder workshops have been organized, the persistent gaps in inter-agency coordination raise questions about the effectiveness of these initiatives. Addressing these gaps is essential for ensuring Zambia fulfills its obligations under CITES and safeguards its biodiversity.

CITES is an international agreement designed to regulate the trade of wild species to prevent their extinction. Zambia, as a signatory, plays a critical role in ensuring compliance with CITES provisions, particularly given its biodiversity and strategic location as a transit hub for wildlife trafficking [8]. CITES enforcement in Zambia involves collaboration among various institutions, including the Department of National Parks and Wildlife (DNPW), customs, and law enforcement agencies. Effective implementation is essential to curb illegal trade and conserve endangered species.

Capacity building is vital for equipping enforcement agencies with the knowledge and resources required to address wildlife crimes effectively [9]. Training programs, resource allocation, and institutional strengthening are among the measures adopted globally to enhance enforcement [10]. In Zambia, agencies such as DNPW spearhead capacity-building initiatives focused on species identification, intelligence gathering, and border surveillance. Despite these efforts, challenges like inadequate funding and lack of advanced technology persist, limiting the impact of these programs [11].

Coordination among enforcement agencies is fundamental to the success of CITES implementation. Key stakeholders in Zambia include the DNPW, customs, and law enforcement, each playing a distinct role in curbing wildlife crimes [12]. Weak inter-agency collaboration, however, undermines enforcement efforts [13]. For instance, inadequate communication channels and overlapping mandates lead to inefficiencies in resource utilization and enforcement actions [14]. Enhanced coordination, supported by clear operational frameworks and joint operations, is necessary to strengthen compliance.

The effectiveness of capacity-building programs lies in their ability to address structural and operational challenges [15]. In Zambia, training programs have improved the technical skills of enforcement officers, yet their long-term effectiveness remains questionable due to a lack of follow-up evaluations [16]. Additionally, harmonized enforcement protocols and the inclusion of community-based organizations in conservation efforts are essential for improving outcomes [17]. Effective capacity building not only enhances the skills of personnel but also fosters a culture of cooperation among enforcement agencies [10].

In a bid to enhance multilateral aid for wildlife conservation and CITES

implementation, the Chinese Government extended its support to Zambia, a developing country, through a knowledge exchange initiative [18]. This program is part of China's broader strategy to invite African nations for capacity-building sessions, aiming to improve wildlife conservation and CITES implementation strategies across the continent. In 2019, Zambia was one of seven African countries selected to participate in a three-week seminar on CITES implementation and wildlife conservation, held in Hangzhou City, Zhejiang Province. Sponsored by the Ministry of Commerce of the People's Republic of China, the seminar provided valuable insights and practical knowledge that are critical for advancing wildlife conservation and CITES implementation efforts in Zambia and other participating nations.

While existing studies acknowledge the importance of capacity building, there is limited research on its influence on inter-agency coordination in Zambia. Most literature emphasizes individual agency performance rather than collective outcomes, leaving a significant gap in understanding how capacity-building initiatives impact collaboration.

The CITES implementation training at China National Bamboo Research Center which was conducted in the past, was well organised and sponsored by the Chinese government, therefore there is need to collaborate and coordinate with the institution for the successful local trainings with stakeholders. This Research therefore was conducted to evaluate the effectiveness of capacity-building initiatives in enhancing coordination among CITES enforcement agencies in Zambia. In order to do so, the following questions were asked;

1. What structures has the Management Authority established to support collaborative CITES implementation in Zambia?

2. What is the nature of past training programs regarding needs assessment, trainer expertise, curricula, and delivery methods?
3. How do participants perceive the training in terms of content, duration, and delivery, and its impact on collaboration?
4. What mechanisms have stakeholders implemented post-training to ensure effective inter-agency coordination, and what challenges remain?

Methods

Data Source

This study was conducted in Zambia, a landlocked country located in Southern Africa. Zambia covers an area of approximately 752,612 square kilometers, with a population of approximately 19 million people, as per the latest census data [19]. The country is bordered by eight countries: Angola to the west, the Democratic Republic of Congo to the north, Tanzania to the northeast, Malawi to the east, Mozambique to the southeast, Zimbabwe to the south, Botswana and Namibia to the southwest [20].

Zambia is home to a rich diversity of wildlife, with several national parks, game management areas, and wildlife reserves scattered across its various ecological zones. The country's major ecosystems include the forested regions in the north, such as the Miombo woodlands, and the savannah regions that cover much of the central and southern parts. These ecosystems are critical for supporting a variety of species, including elephants, lions, buffalo, and antelope, which are central to Zambia's thriving tourism sector.

Zambia's wildlife is managed through the Department of National Parks and Wildlife (DNPW), which oversees 19 national parks and over 30 game management areas across the country. The government is committed to sustainable wildlife conservation, balancing the protection of natural resources with the needs of local communities, particularly in the

face of threats such as poaching, illegal wildlife trade, and human-wildlife conflict. The study will focus on understanding how these management structures are being implemented in Zambia and assess the effectiveness of conservation initiatives.

Sample Design

Purposive sampling was adopted for this study to select participants who have specific knowledge or experience in the wildlife management practices and policies in Zambia. The sample consisted of stakeholders from various institutions involved in wildlife conservation and management, including the Department of National Parks and Wildlife (DNPW), the Ministry of Tourism and Arts, the Zambia Police Service, the Department of National Parks and Wildlife (DNPW), and local community-based wildlife management programs.

The study targeted key individuals such as wildlife officers, conservation managers, law enforcement officials, and local community leaders involved in wildlife conservation and management. A total of 100 participants were selected based on their roles in wildlife management, including 30 from DNPW, 20 from the Ministry of Tourism, 10 from DNPW, 15 from local community-based conservation initiatives, and 25 law enforcement officers.

The final sample was chosen based on their ability to provide relevant insights into the study's objectives, and respondents were carefully selected to ensure diversity in their perspectives and areas of expertise.

Data Analysis

The data collected from interviews and surveys were analyzed using both qualitative and quantitative techniques to ensure a comprehensive understanding of the research topic. The qualitative data, derived from face-to-face interviews and open-ended survey questions, were analyzed through narrative

data analysis. This process involved categorizing the data into themes and sub-themes aligned with the study's objectives. The findings were then presented descriptively, incorporating relevant quotes from respondents to emphasize key insights.

For the quantitative data, Microsoft Excel was utilized to perform basic descriptive statistical analyses, including frequencies and percentages. The results were visually represented using frequency tables, ensuring clarity and ease of interpretation. To enrich the analysis, the findings from both qualitative and quantitative methods were triangulated, offering a holistic perspective on the effectiveness of wildlife management practices. Additionally, these findings were compared with previous research conducted in Zambia and other African countries to identify patterns, draw relevant conclusions, and propose actionable recommendations for improvement.

Ethical Considerations

The study adhered to strict ethical guidelines to ensure the rights and welfare of participants were respected throughout the research process. Prior to data collection, ethical approval was obtained from the relevant institutional review board, establishing a foundation for conducting the study responsibly. Participants were fully informed about the study's objectives, their role, and the voluntary nature of their participation, with written consent obtained to ensure informed agreement. Confidentiality was prioritized, with measures implemented to safeguard respondents' identities and sensitive information by anonymizing data and storing it securely. The principle of non-maleficence was upheld by ensuring that no harm or discomfort was caused to participants during data collection. Additionally, official permissions were sought from relevant authorities to access organizational data and conduct research within their premises,

ensuring compliance with institutional and legal requirements.

Results

The study involved respondents from different CITES stakeholder institutions, categorized into past training beneficiaries, the CITES Management Authority of Zambia, and past training organizers. Of the total respondents, the largest group consisted of past training beneficiaries (81%), followed by the CITES MA (9%) and training organizers (7%). In terms of gender representation, 59% of the respondents were male and 41% were female. The age distribution revealed that most respondents were between the ages of 31-45 (39%) and 46-60 (42%), with no respondents aged above 60.

Regarding educational backgrounds, 21% of respondents held PhDs, 43% had bachelor's degrees, 27% were postgraduate students, and 9% had diplomas. The majority (48%) of the respondents were employed in managerial positions, followed by 23% in senior management. In terms of work experience, 36% of respondents had between 1-10 years of experience, 27% had 11-20 years, and 22% had 21-30 years of experience.

When asked about the nature of past CITES training, respondents generally attended one or two training workshops, with 46% attending two sessions. Many rated the content of these trainings as average, with a significant number of past training beneficiaries (50%) feeling that the allocated time for these sessions was too short. Additionally, 71% of the respondents believed that CITES should be incorporated into academic curricula in universities and training schools across Zambia.

Regarding the practical application of the training, 67% of past training beneficiaries felt that the training was not practical enough, while 66% rated the resource persons' mastery over the content as high. Despite this, 49% of respondents believed they could identify

CITES-listed species after completing the training. However, when assessing the impact of CITES training on coordination and collaboration, most past training beneficiaries (42%) rated this aspect as average, with a smaller group giving it a higher rating. Similarly, 48% of respondents indicated that the training had a moderate influence on their working relationships with other CITES stakeholders, while 24% rated this influence as high.

Regarding mechanisms for coordination, 57% of respondents felt that the Wildlife Division had not created effective avenues for collaboration among CITES stakeholders, while 9% believed some avenues had been established, but were not sufficient.

Discussion of Findings

The findings of this study provide valuable insights into the perspectives and experiences

of various stakeholders involved in CITES-related activities. The respondent group primarily consisted of past training beneficiaries (81%), with smaller representations from the CITES Management Authority (9%) and past training organizers (7%). This distribution highlights the critical role of training participants in the implementation and understanding of CITES-related initiatives.

Demographics and Professional Backgrounds

Gender representation among respondents was relatively balanced, with males (59%) slightly outnumbering females (41%). This suggests some progress toward gender inclusivity in CITES-related activities. However, further efforts are needed to bridge this gap and promote equal participation.

Table 1. Age Distribution

Age Group	Percentage %
30 years and below	0
31-45 years	39
46-60 years	42
Above 60	0

Most respondents were between the ages of 31-45 (39%) and 46-60 (42%), indicating a workforce that is mature and likely well-established in their careers. The absence of

respondents above 60 years suggests a potential underrepresentation of more senior professionals or retirees who might contribute historical or policy-level insights.

Table 2. Education Level

Qualification	Percentage %
PhD	21
Postgraduate	43
Bachelor's Degree	27
Diploma	9

In terms of educational qualifications, the majority of respondents held higher education degrees, with 43% possessing bachelor's degrees, 27% being postgraduate students, and 21% holding PhDs. This reflects a well-

educated participant pool, likely equipped with the theoretical knowledge necessary for understanding and applying CITES regulations. Additionally, 48% of respondents were employed in managerial positions, and

23% were in senior management, indicating that decision-making roles are well-represented among stakeholders.

Qualitative Results

The qualitative component involved in-depth interviews with key representatives from the CITES Management Authority and past training beneficiaries. Participants shared insights into the effectiveness of current structures, training programs, and inter-agency collaboration mechanisms.

Key Themes Identified

Gaps in Structural Support

Interviewees noted that while the Management Authority has made strides in aligning stakeholders, there is a lack of regular communication channels and clear roles for different agencies in CITES implementation. One participant stated, *“We need a platform where stakeholders can engage regularly, not just during training workshops.”*

Relevance and Practicality of Training

Several respondents highlighted a disconnect between the training content and real-world applications. One interviewee commented, *“The sessions were informative but did not provide practical scenarios or simulations to prepare us for field challenges.”*

Perceived Impact on Collaboration

While training was generally appreciated for raising awareness, some participants emphasized that it failed to create sustainable collaboration frameworks. As one respondent observed, *“The training inspired teamwork during the sessions, but this didn’t translate into long-term collaboration afterward.”*

Post-Training Mechanisms

Interviewees consistently pointed to the absence of post-training mechanisms, such as feedback loops or follow-up sessions, to monitor and enhance inter-agency

coordination. One key informant remarked, *“There’s no follow-up after training to ensure that the lessons are being applied effectively.”*

Training and its Perceived Impact

The study revealed critical insights into the effectiveness of past CITES training programs. Most participants attended one or two workshops, with 46% attending two sessions. While the majority rated the content of these training sessions as average, there is a clear need for more comprehensive and practical training approaches. A significant proportion (50%) felt that the allocated time for training sessions was insufficient, suggesting a potential misalignment between training duration and content depth.

Notably, 67% of past training beneficiaries found the training insufficiently practical, which may hinder their ability to apply CITES principles effectively in their professional roles. Despite this, 66% rated the trainers’ mastery of the content as high, indicating confidence in the expertise of resource persons. However, only 49% felt equipped to identify CITES-listed species post-training, highlighting a gap between theoretical knowledge and practical application.

Collaboration and Coordination

The findings underscore challenges in fostering collaboration among CITES stakeholders. While 42% of training beneficiaries rated the impact of training on coordination as average, and only 24% rated it highly, this indicates room for improvement in enhancing stakeholder relationships through training initiatives. Similarly, 48% of respondents perceived the training's influence on their working relationships with other stakeholders as moderate.

Mechanisms for stakeholder coordination also emerged as a critical concern. A majority (57%) expressed dissatisfaction with the Wildlife Division’s efforts to establish effective collaboration avenues, while 9%

believed that existing mechanisms were inadequate. This calls for the implementation of more robust strategies to enhance stakeholder engagement and create cohesive networks.

The qualitative findings provided deeper insights into the challenges and opportunities associated with CITES implementation in Zambia. Participants emphasized gaps in structural support, noting the absence of regular communication channels and clearly defined roles among stakeholders. While training sessions were acknowledged for raising awareness, respondents highlighted the lack of practical application, with calls for incorporating simulation exercises and field scenarios into future programs. Furthermore, the impact of training on inter-agency collaboration was perceived as limited, as teamwork fostered during workshops rarely translated into sustained partnerships. Notably, participants pointed to the absence of post-training mechanisms, such as follow-up sessions or task forces, to monitor and enhance coordination efforts, suggesting that addressing these issues could significantly improve the effectiveness of CITES initiatives.

Conclusion

In conclusion, this study highlights the significant role of training in CITES implementation, yet it identifies critical gaps in training design and stakeholder collaboration mechanisms. While the expertise of resource persons and the educational background of participants are notable strengths, the insufficient practicality of training and limited coordination efforts impede the effectiveness of CITES-related initiatives. Further, the study reveals the lack of regular communication channels, clearly defined roles, and post-training mechanisms, which hinder sustained collaboration among stakeholders. Enhancing the practical components of training, extending their duration, incorporating field scenarios, and

establishing robust engagement frameworks are essential steps toward achieving the intended outcomes of CITES programs.

Recommendations

To improve wildlife trade management and enhance the CITES implementation in Zambia, the following recommendations are proposed:

1. There is need to focus on establishing good bilateral cooperation mechanism with various governments, China as an example, to obtain more opportunities for capacity building and exchanges based on past experience.
2. Pursue international partnerships with other governments and global organizations to secure funding and technical support for capacity-building activities.
3. There is a need to sensitize the government officials who are decision makers about CITES and wildlife crime related issues for easy collaborating with other stakeholders and enforcement agencies.
4. The Department of National Parks and Wildlife (DNPW) should establish a dedicated coordination unit to improve inter-agency collaboration.
5. Formal agreements, such as Memoranda of Understanding (MoUs), should be developed between DNPW and relevant CITES stakeholders to define roles and communication channels.
6. Training content should be tailored to highlight the specific roles of each stakeholder in CITES enforcement and wildlife protection. This would ensure that all agencies understand their unique responsibilities and contributions to the overall success of CITES implementation in Zambia.
7. CITES-listed species identification manuals should be distributed to all trained personnel, ensuring they have easy

- access to important information post-training.
8. Future CITES training in Zambia should incorporate practical sessions, such as handling specimens, to make the training more impactful and realistic.
 9. Additional training should be extended to other stakeholders, including wildlife exporters, border officials, and Customs officers, to ensure a comprehensive approach to wildlife trade regulation.
 10. Establish focal persons in key agencies responsible for coordinating CITES enforcement matters. These individuals would ensure regular communication and collaboration, especially among those who have undergone CITES training.
 11. Government decision-makers in Zambia need to be sensitized about the importance of CITES and the implications of wildlife crime. This will help build political will and foster a commitment to more robust implementation of CITES.
 12. Zambia's government should allocate more resources to wildlife law enforcement, including funding for logistical support, training, and the establishment of coordination mechanisms.

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13. By addressing these recommendations, Zambia can significantly improve the effectiveness of its wildlife trade management and enforcement systems. This will ensure that the country adheres to CITES regulations, contributes to global wildlife protection efforts, and curtails illegal wildlife trafficking.

Conflict of Interest

The author declares that there are no conflicts of interest related to this study. No financial or personal relationships have influenced the content or outcomes of this research.

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