The Chepang Community and Rhino Conservation in Nepal: Unveiling Perspectives on Wildlife Trade to Foster Conservation

Vasundhara Hemant Krishnani

INDIAN INSTITUTE OF TECHNOLOGY DELHI
&
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The Chepang Community and Rhino Conservation in Nepal: Unveiling Perspectives on Wildlife Trade to Foster Conservation

by

Vasundhara Hemant Krishnani

Master of Conservation Science

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to the

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&

THE UNIVERSITY OF QUEENSLAND

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Dedicated to my father, Hemant Krishnani

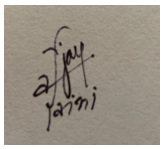
Thank you, Papa, for your constant encouragement, support, and love



One-horned rhinoceros, Kaziranga. Photo Credit: Hemant Krishnani

Supervisor Certification

This is to certify that the thesis entitled "**The Chepang Community and Rhino Conservation in Nepal: Unveiling Perspectives on Wildlife Trade to Foster Conservation"** being submitted by **Ms. Vasundhara Krishnani** to the Indian Institute of Technology Delhi and The University of Queensland for the award of degree of **Doctor of Philosophy** is a record of *bonafide* research work carried out by **Ms. Vasundhara Krishnani,** who has worked under our guidance and supervision and has fulfilled the requirements for the submission of this thesis, which to our knowledge has reached the requisite standard. The results contained in this thesis are original and have not been submitted, in part or full, to any other university or institute for the award of any other degree or diploma.



Professor Ajay Saini

Centre for Rural Development and Technology

Indian Institute of Technology,

Delhi, India

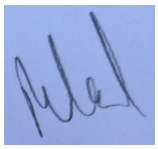


Professor Salit Kark

School of the Environment

University of Queensland,

Brisbane, Australia



Dr. Patrick Ward

Associate Advisor

University of Queensland,

Brisbane, Australia



Dr. Dibesh Karmacharya

Adjunct Senior Fellow

University of Queensland,

Brisbane, Australia

Abstract

Illegal wildlife trade poses one of the most significant threats to global biodiversity, driving population declines of iconic species, such as rhinoceroses, elephants and pangolins. While enforcement and anti-poaching measures have intensified around the globe in recent years, local communities living in proximity to protected areas often remain both affected by and implicated in illegal wildlife trade. This includes areas in Asia, such as Nepal. Despite strict punishments on illegal wildlife trade in Nepal, including long prison sentences, local participation in rhino poaching persists, raising critical questions about the deeper structural and socio-economic drivers behind such involvement of local community members and their short and long-term impacts on both the community and biodiversity conservation.

This thesis aims to examine these dynamics through a case study of the Chepang, an Indigenous Tibeto-Burman community residing primarily in the Chitwan, Dhading, Makwanpur, and Gorkha districts of Nepal. Historically semi-nomadic hunter-gatherers, the Chepang have faced long-standing marginalisation due to poverty, food insecurity, low literacy rates, insecure land tenure, and limited access to state services. These conditions, combined with the Chepang's extensive ecological knowledge and traditional hunting skills, have rendered some Chepang households vulnerable to recruitment by intermediaries within poaching networks. This paradox, namely the high risk of strict punishments, yet continued involvement in illegal wildlife trade, frames the central puzzle this doctoral research seeks to address and help resolve.

The study is guided by three interrelated research questions, including: (1) What historical, economic, and social conditions are associated with community involvement in illegal wildlife trade? (2) How do conservation-led relocations and governance approaches (top-down models) intersect with existing vulnerabilities among Indigenous communities, and are these intersections associated with wildlife poaching and trafficking? (3) What community-inclusive strategies have been implemented to address illegal wildlife trade, and what evidence is there regarding their outcomes for enhancing equity, supporting the community and for achieving wildlife conservation goals?

Methodologically, the study employed a mixed-methods approach. Data was collected through a semi-structured interview schedule that combined open and close-ended questions. A total of 236 participants were surveyed, ranging across four groups: (i) individuals

incarcerated under wildlife laws for poaching; (ii) family members of incarcerated individuals; (iii) individuals not involved in poaching, and; (iv) family members of individuals not involved in poaching. Within this broader sample, 108 participants belonged to the Chepang community, including 62 who reported direct or indirect involvement in poaching activities. The other participants were part of the non-Chepang local and Indigenous communities in the region, providing comparative perspectives on socio-economic conditions and conservation interactions. Purposive and snowball sampling strategies were used to include both individuals incarcerated for poaching and those who were not involved in poaching. Qualitative thematic coding was employed to analyse narratives of marginalisation, recruitment, and incarceration, while descriptive statistics contextualised socio-economic indicators, such as education, land tenure and food security.

Comparative analysis across individuals incarcerated for poaching and those not involved in poaching, as well as between Chepang and non-Chepang communities, revealed that while general perceptions of well-being and law enforcement impacts did not differ significantly, Chepang respondents expressed distinct negative perspectives on access to resources, cultural identity, and the uneven distribution of conservation benefits. The study also found strong positive within-family concordance in perceptions: members of a family pair tended to provide similarly positive or similarly negative profiles. Households with more negative profiles were more often associated with involvement in illegal wildlife trade, and Chepang households showed a greater propensity toward negative profiles and lower concordance

The findings of this study suggest that the impacts of incarceration on families were profound, exacerbating poverty, school dropout, and food insecurity, especially in households where the absence of men due to imprisonment placed additional burdens on women and children. Social stigma further deepened community marginalisation. The findings also indicate that the Chepang's involvement in rhino poaching may be driven primarily by structural vulnerability, rather than deliberate criminal intent. Interviews highlighted how recruitment into poaching was often facilitated by small cash payments, alcohol, or drugs offered by intermediaries, with local Chepang contributing their ecological expertise while receiving only a minor fraction of the profits relative to the high international value of rhino horn.

Based on the findings of this study, we suggest that enforcement-focused conservation approaches, while necessary, are insufficient when applied in isolation. We suggest that long-

term rhino conservation in Nepal would benefit from strategies and actions addressing socio-economic exclusion among communities such as the Chepang. Targeted interventions in livelihood diversification, equitable benefit-sharing, and inclusive governance are essential to reduce vulnerability to exploitation and to transform communities from being perceived as potential individuals who can be involved in poaching into active stewards of conservation. By situating the Chepang's lived realities within broader debates on illegal wildlife trade and conservation justice, this thesis underscores that sustainable solutions must integrate bottom-up perspectives alongside enforcement, thereby bridging the gap between biodiversity protection and social factors.

Thesis Title in Hindi

नेपाल में चेपांग समुदाय और गैंडा संरक्षण: संरक्षण को प्रोत्साहित करने हेतु वन्यजीव व्यापार पर दृष्टिकोणों का अनावरण

Abstract in Hindi

गैरकानूनी वन्यजीव व्यापार वैश्विक जैव-विविधता के लिए सबसे गंभीर खतरों में से एक है। यह गैंडों, हाथियों और पैंगोलिन जैसी प्रतीकात्मक प्रजातियों की संख्या में भारी गिरावट का कारण बन रहा है। जबकि प्रवर्तन और शिकार-रोधी उपाय वैश्विक स्तर पर तेज़ हुए हैं, संरक्षित क्षेत्रों के निकट रहने वाले समुदाय अभी भी इस व्यापार से प्रभावित हैं और कई बार इसमें संलिप्त पाए जाते हैं। नेपाल में कठोर दंड—जिनमें लंबी जेल सजाएँ शामिल हैं—के बावजूद गैंडे के शिकार में स्थानीय भागीदारी बनी हुई है। यह प्रश्न उठाता है कि ऐसे संलिप्त होने के गहरे संरचनात्मक और सामाजिक-आर्थिक कारण क्या हैं।

यह शोध इन पहलुओं की जाँच चेपांग समुदाय के अध्ययन के माध्यम से करता है, जो तिब्बत-बर्मी मूल का एक आदिवासी समुदाय है और मुख्य रूप से नेपाल के चितवन, धादिंग, मकवानपुर और गोरखा ज़िलों में रहता है। परंपरागत रूप से अर्ध-घुमंतु शिकारी-संग्राहक रहे चेपांग लंबे समय से हाशिये पर रहे हैं—लगातार गरीबी, खाद्य असुरक्षा, कम साक्षरता दर, असुरक्षित भूमि अधिकार और सरकारी सेवाओं तक सीमित पहुँच से जूझते हुए। इन परिस्थितियों के साथ-साथ उनके व्यापक पारिस्थितिक ज्ञान और पारंपरिक शिकार कौशल ने कुछ चेपांग परिवारों को शिकार नेटवर्कों के दलालों द्वारा भर्ती किए जाने के लिए संवेदनशील बना दिया है। यह विरोधाभास—कठोर दंड का उच्च जोखिम, फिर भी निरंतर संलिप्तता—इस शोध का केंद्रीय प्रश्न है।

अध्ययन तीन परस्पर जुड़े शोध-प्रश्नों द्वारा निर्देशित है:

1. कौन-सी ऐतिहासिक, आर्थिक और सामाजिक परिस्थितियाँ समुदायों को गैरकानूनी वन्यजीव व्यापार में संलिप्त करती हैं?
2. संरक्षण-प्रेरित विस्थापन और शीर्ष-से-नीचे शासन मॉडल आदिवासी समुदायों की मौजूदा कमजोरियों के साथ कैसे जुड़ते हैं, और क्या ये संबंध शिकार और तस्करी में संलिप्तता से जुड़े हैं?
3. गैरकानूनी वन्यजीव व्यापार से निपटने के लिए कौन-सी समुदाय-समावेशी रणनीतियाँ अपनाई गई हैं, और उनके न्याय व संरक्षण लक्ष्यों पर क्या परिणाम देखने को मिले हैं?

कार्यप्रणाली के रूप में अध्ययन ने *मिश्रित विधियों* का उपयोग किया। अर्ध-संरचित प्रश्नावली के माध्यम से डेटा एकत्र किया गया, जिसमें खुले और बंद दोनों प्रकार के प्रश्न शामिल थे। कुल 236 प्रतिभागियों का सर्वेक्षण किया गया, जिन्हें चार श्रेणियों में विभाजित किया गया: (i) शिकार के लिए वन्यजीव कानूनों के अंतर्गत कारावास झेल रहे व्यक्ति, (ii) कैदियों के परिवार के सदस्य, (iii) शिकार में संलिप्त न रहे व्यक्ति, और (iv) शिकार में संलिप्त न रहे व्यक्तियों के परिवारजन। इस व्यापक नमूने में से 108 प्रतिभागी चेपांग समुदाय के थे, जिनमें 62 ने शिकार में प्रत्यक्ष या अप्रत्यक्ष रूप से संलिप्तता की सूचना दी। शेष प्रतिभागी अन्य स्थानीय और आदिवासी समुदायों से थे, जिनसे तुलनात्मक दृष्टिकोण प्राप्त हुआ।

लक्षित और स्नोबॉल सैंपलिंग रणनीतियों का उपयोग किया गया, ताकि शिकार में संलिप्त और असंलिप्त दोनों प्रकार के लोग शामिल हों। हाशियाकरण, भर्ती और कारावास की कहानियों का विश्लेषण करने के लिए गुणात्मक *थीमैटिक कोडिंग* अपनाई गई, जबकि सामाजिक-आर्थिक संकेतकों (जैसे शिक्षा, भूमि अधिकार और खाद्य सुरक्षा) को संदर्भित करने के लिए वर्णनात्मक आँकड़ों का उपयोग किया गया।

निष्कर्ष बताते हैं कि चेपांग का गैंडे के शिकार में शामिल होना जानबूझकर की गई आपराधिक प्रवृत्ति से अधिक संरचनात्मक कमजोरियों का परिणाम है। साक्षात्कारों ने दिखाया कि भर्ती अक्सर मामूली नकद भुगतान, शराब या नशीले पदार्थों के माध्यम से की जाती थी, और चेपांग अपने पारिस्थितिक कौशल का योगदान देते हुए भी गैंडे के सींग के अंतरराष्ट्रीय मूल्य की तुलना में केवल नगण्य लाभ प्राप्त करते थे। यह अध्ययन धारणाओं में मज़बूत अन्तःपरिवार अनुरूपता भी दिखाता है: परिवार के सदस्य प्रायः या तो दोनों ही सकारात्मक प्रोफ़ाइल देते हैं या दोनों ही नकारात्मक। अधिक नकारात्मक प्रोफ़ाइल वाले परिवारों का अवैध वन्यजीव व्यापार में संलिप्तता से अधिक संबंध मिला, और चेपांग गृहस्थियोंमें नकारात्मक प्रोफ़ाइल की प्रवृत्ति अधिक तथा अनुरूपता अपेक्षाकृत कम पाई गई।कारावास का परिवारों पर गहरा असर पड़ा—गरीबी बढ़ी, बच्चों की पढ़ाई छूटी, खाद्य असुरक्षा बढ़ी—विशेष रूप से उन घरों में जहाँ पुरुषों की अनुपस्थिति ने महिलाओं और बच्चों पर अतिरिक्त बोझ डाल दिया। सामाजिक कलंक ने समुदाय के हाशियाकरण को और गहरा किया।

तुलनात्मक विश्लेषण (कैदियों और गैर-शिकार परिवारों, तथा चेपांग और गैर-चेपांग समुदायों के बीच) से पता चला कि जबकि सामान्य कल्याण और कानून प्रवर्तन प्रभाव की धारणाओं में बड़ा अंतर नहीं था, चेपांग

उत्तरदाताओं ने संसाधनों की पहुँच, सांस्कृतिक पहचान और संरक्षण लाभों के असमान वितरण पर स्पष्ट नकारात्मक दृष्टिकोण व्यक्त किया।

यह शोध तर्क देता है कि केवल प्रवर्तन-आधारित संरक्षण, यद्यपि आवश्यक है, पर्याप्त नहीं है। नेपाल में दीर्घकालिक गैंडा संरक्षण प्रयासों के लिए चेपांग जैसे हाशिये पर मौजूद समुदायों के सामाजिक-आर्थिक बहिष्कार को संबोधित करना आवश्यक होगा। लक्षित हस्तक्षेप—जैसे आजीविका का विविधीकरण, संरक्षण लाभों का न्यायपूर्ण वितरण, और शासन में समुदाय की भागीदारी—उनकी कमजोरियों को कम कर सकते हैं और उन्हें अपराध नेटवर्क में शोषित होने से बचाकर संरक्षण के सक्रिय संरक्षक में बदल सकते हैं। चेपांग की ज़मीनी हकीकत को गैरकानूनी वन्यजीव व्यापार और संरक्षण न्याय की व्यापक बहस में रखकर यह शोध रेखांकित करता है कि स्थायी समाधान प्रवर्तन के साथ-साथ नीचे से ऊपर (bottom-up) दृष्टिकोण को भी शामिल करने चाहिए, जिससे जैव-विविधता संरक्षण और सामाजिक न्याय के बीच सेतु स्थापित हो सके।

Declaration by Author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly authored works that I have included in my thesis.

I have clearly stated the contribution of others to my thesis as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, financial support and any other original research work used or reported in my thesis. The content of my thesis is the result of work I have carried out since the commencement of my higher degree by research candidature and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my thesis, if any, have been submitted to qualify for another award.

I acknowledge that an electronic copy of my thesis must be lodged with the University Library and, subject to the policy and procedures of The University of Queensland, the thesis be made available for research and study in accordance with the Copyright Act 1968 unless a period of embargo has been approved by the Dean of the Graduate School.

I acknowledge that copyright of all material contained in my thesis resides with the copyright holder(s) of that material. Where appropriate I have obtained copyright permission from the copyright holder to reproduce material in this thesis and have sought permission from co-authors for any jointly authored works included in the thesis.



Vasundhara Hemant Krishnani

Contributions by others to the thesis

All chapters

Conceptualization of study planning, ideas, advice in analysis, editing of chapters were provided by the candidate's supervisors, Prof. Salit Kark, Prof. Ajay Saini, Dr. Patrick Ward and Dr. Dibesh Karmacharya. Review was provided by the PhD committee, Prof. Vivek Kumar, and Prof. Upasna Sharma.

The study was conceived and designed by Vasundhara Krishnani with support from Salit Kark, Ajay Saini and Dibesh Karmacharya. Field access and on-ground logistics were enabled by Dibesh Karmacharya and Madhav Giri. The questionnaire and interview guides were developed by Vasundhara Krishnani with support from Patrick Ward, Salit Kark, Ajay Saini and Dibesh Karmacharya. Community liaison and permissions were arranged by Vasundhara Krishnani with support from Dibesh Karmacharya and Bishwo Shrestha. Data collection (interviews, surveys, and field notes) was conducted by Vasundhara Krishnani with translation and transcription by Vasundhara Krishnani. Data entry, cleaning, and coding were carried out by Vasundhara Krishnani and Patrick Ward, under oversight from Salit Kark. Analysis and interpretation were led by Vasundhara Krishnani with input support and review from Patrick Ward. Figures and maps were prepared by Vasundhara Krishnani, with technical support from Bivisha Khadka. The original draft was written by Vasundhara Krishnani, and review and editing were undertaken by Salit Kark, Ajay Saini, Dibesh Karmacharya, and Patrick Ward. Ethics, risk management, and safeguarding oversight were provided by Dibesh Karmacharya and Nepal Health Research Council, with compliance materials prepared by Vasundhara Krishnani. Project administration and record-keeping were managed by Vasundhara Krishnani, and funding acquisition and institutional support were provided by Ragini Gill.

Statement of parts of the thesis submitted to qualify for the award of another degree

No works were submitted towards another degree have been included in this thesis.

Research involving human or animal subjects

No animal subjects were involved in this research.

This study involved human participants solely for the purpose of conducting semi-structured interview schedules. No biological samples, laboratory testing, or clinical procedures were undertaken. Participation was voluntary, and informed consent was obtained from all respondents. The research design ensured confidentiality and minimised any potential risks to participants while focusing exclusively on documenting perceptions, socio-economic conditions, and lived experiences related to wildlife conservation and illegal wildlife trade. Ethical approval for the study was granted by the Nepal Health Research Council (Approval ID: 413 – 2022).

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ਨਾ ਹਮ ਕਰਮ ਕਰੇ ਕਰਤਾਰ। ਸਭੁ ਕਿਛੁ ਕਰਤਾ ਤੇਰਾ ਪਿਆਰ।

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Australian and New Zealand standard research classifications (ANZSRC)

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Fields of research classification

Example:
FoR code: 0502 Environmental Science and Management, 50%
FoR code: 0602 Ecology, 20%
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List of abbreviations used in the thesis

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DNPWC	Department of National Parks and Wildlife Conservation
EIA	Environmental Investigation Agency
HWC	Human-wildlife conflict
ILO	International Labour Organization
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IUCN	International Union for Conservation of Nature
IFAW	International Fund for Animal Welfare
IRF	International Rhino Foundation
INTERPOL	International Criminal Police Organisation
LMICs	Low-and Middle-Income Countries
NTCA	National Tiger Conservation Authority
NTNC	National Trust for Nature Conservation (Nepal)
TCM	Traditional Chinese medicine
TRAFFIC	Trade Records Analysis of Flora and Fauna in Commerce
UNEP	United Nations Environment Programme
UNODC	United Nations Office on Drugs and Crime
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WCO	World Customs Organisation
WII	Wildlife Institute of India
WWF	World Wildlife Fund
WLPA	Wildlife Protection Act