

STRATEGIC PLAN

2024–2028



Central Department of Zoology
Tribhuvan University
Kirtipur, Kathmandu

2024

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PREFACE

The Central Department of Zoology (CDZ) was established in 1965 with the goals of producing highly skilled human resources in the field of Zoology and providing policy guidance to the Government officials. Over the years, the department has not only successfully achieved these initial goals but has also had a broader impact on society.

Our department is committed to providing exceptional training to our students, supported by an extensive range of resources. At the MSc level, students have the opportunity to specialize in one of four major fields: Ecology & Environment, Entomology, Fish Biology & Aquaculture, and Parasitology. For both MSc and PhD students, CDZ offers well-equipped labs with modern and sophisticated instruments, overseen by highly qualified faculty members dedicated to their research. Additionally, our department boasts its own library, housing a substantial collection of textbooks and references covering a wide array of topics relevant to our course offerings.

The Central Department of Zoology Museum at Tribhuvan University (CDZMTU), managed by the CDZ, has maintained reputable national collections, including several type specimens (holotype and paratype) since its establishment. This museum is a valuable resource for teaching and research, as it houses an impressive array of specimens, including invertebrates, freshwater fishes, amphibians, reptiles, birds, and mammals.

Beyond the academic sphere, CDZ serves an important role not only in creating and disseminating new knowledge but also in forming a nexus of interaction and engagement among different stakeholders.

Guided by core principles, CDZ is committed to being responsive to national needs and advancing departmental growth. The Strategic Plan (2024-2028) has been crafted to set clear policy directions and ensure the efficient allocation of limited resources. Previous initiatives, including the most recent Strategic Plan for 2018-2023, have laid the groundwork for defining CDZ's policy direction. Building on that foundation, this new plan sets forth a vision for the next five years (2024-2028). The invaluable contributions of our faculty and administrative staff have been instrumental in shaping this plan, with special recognition to Dr. Indra Prasad Subedi, whose insights have significantly influenced its development.

Kumar Sapkota, PhD

Professor & Head

Introduction

The Central Department of Zoology (CDZ), Institute of Science and Technology, Tribhuvan University was founded on Mangsir 13, 2022 (November 28, 1965) with a dual mission: to cultivate highly skilled professionals in the field of Zoology and to provide strategic counsel to governmental authorities. CDZ embarked on its journey within the halls of the Department of Zoology Museum at Trichandra College, under the leadership of Prof. Shiv Shankar Singh, accompanied by a modest trio of students. Guiding these fledgling scholars were a dedicated cadre of faculty members, including luminaries such as Prof. Chandra Prakash Gorkhali, Prof. Madhu Sudan Sharma, Prof. D Bhadnagar, Prof. M. Omair, Prof. Dwiz Raj Uprety, Prof. Kazi Man Bajracharya, Prof. Yugal Krishna Malla, Prof. Trilok Chandra Majupuria, Prof. Jiwan Shrestha, and Prof. Purna Nath Mishra. While Entomology stood as the sole specialized subject at the outset, CDZ has since expanded its offerings to encompass five distinct disciplines: Entomology, Ecology and Environment, Fish Biology and Aquaculture, Parasitology, and Genomics and Molecular Biology.

In a testament to its rapid growth, the MSc Zoology program's second year swiftly outgrew its initial confines, prompting a move to the newly erected chemistry building in Kirtipur within the inaugural year of the department's inception. Following this transition, CDZ saw the construction of a temporary facility in 1990 to accommodate its burgeoning academic community, culminating in the acquisition of a permanent edifice in 1998.

Integral to CDZ's evolution were the contributions of esteemed visiting professors from the United States through the Fulbright program, including TS Acker, DA James, SD Schminitz, H Jacobson, and J Long, alongside their counterparts from the Indian Cooperative Mission (ICM) under the Colombo Plan, such as SS Khanna, SP Bhatnagar, N Khattar, Kunwar Suresh Singh, and VC Kapoor. Their collective expertise played a pivotal role in shaping the growth and development of the Department into a beacon of excellence in the field of Zoology.

The Strategic Plan of the Central Department of Zoology (2024-2028) is prepared to complement and reinforce the broader strategic objectives of Tribhuvan University. By aligning with the University's strategic plan, the department seeks to ensure that its activities are not only relevant but also contribute meaningfully to the institution's overall success. This alignment makes it possible for the department to make better use of the University's networks, resources, and expertise, which in turn promotes a cooperative and encouraging atmosphere for teaching, research, and community engagement.

Achievements

- The department has achieved several notable accomplishments. Some of these are groundbreaking research endeavors in Taxonomy, General Zoology, Animal Ecology, Behavior, Biodiversity, Parasitology, Ecology, Entomology, and Fish and Fisheries, as well as the publication of influential research papers in high-ranking journals. In 2023 alone, our faculty members made significant scholarly contributions, publishing over 58 articles in reputable Scimago journals.
- As one of the oldest Departments of Biological Sciences in Nepal offering MSc and PhD degrees in Zoology, CDZ has produced over two thousand MSc and twenty-seven PhD graduates. Our alumni hold pivotal positions on both national and international fronts, actively contributing to the field through their diverse research endeavors. Consequently, their work has garnered recognition for the country through outstanding publications and affiliations.
- Faculty members have described a number of species new to science. Additionally, they have recorded several fauna species new to the country.
- Faculty members and students have been awarded research projects from various national and international agencies such as TU Research Directorate, UGC, NAST, NTNC, BCN, WWF, RSPB, Rufford, People’s Trust, Global Red Panda Network, Oriental Bird Club, Birdlife International, among others. Coordination and collaboration with other departments and research organizations are ongoing.
- Our students and faculty have the privilege of contributing to the scientific discourse through CDZ's own publication, the Nepalese Journal of Zoology, a JPPS two-star journal (<https://www.cdztu.edu.np/njz/index.php/NJZ>).

Scopes

- Zoology, a scientific study of animals, their behavior, classification, and their interactions with their environment, encompasses a wide range of disciplines and offers numerous exciting career paths in a variety of settings, including universities, research institutes, museums, zoos, government agencies, NGOs and INGOs.
- Many zoologists work in universities, conducting research, and teaching the next generation of scientists. They contribute to expanding knowledge of the animal kingdom and inspiring future discoveries.
- Zoologists often collaborate with other scientific disciplines, and this interdisciplinary approach allows for pioneering research and innovative solutions to global challenges.

Running Programs:

Master of Science (MSc Zoology)

It is designed to gain deep knowledge in the area of students' interest. It is a 2-year 4-semester course with a mandatory dissertation. Zoology students can choose one of the five specializations available at the department (Ecology & Environment, Entomology, Parasitology, Fish Biology & Aqua culture, Genomics and molecular biology).

This program is not only supposed to improve the academic excellence of the department but also expected to meet the demand of market by producing competent human resources in the field of animal science.

Doctor of Philosophy (PhD in Zoology)

It is mainly based on research conducted under supervision of faculty members preparing to embark on a challenging, focused, and meaningful experience. Provision of co-supervision has also been made with zoologists working in national and international centers of excellence to pursue doctorate program.

Strengths

The department has a diverse group of experts in various areas of zoology that allows for a comprehensive understanding of the subject matter. The department provides ample research opportunities to its students.

- It offers range of courses providing students with a solid foundation in zoological principles and practices.
- It has connections and collaborations with other departments, research institutions, and organizations to facilitate interdisciplinary research and networking opportunities, leading to a broader impact and exchange of ideas.
- It actively contributes to conservation efforts by conducting research on taxonomy, behavior, endangered species, habitat restoration, and environmental issues.
- It is also engaged in public outreach activities, by organizing national and international conferences, workshops, seminars, and guest lectures.
- It also contributes to science communication through publication of scientific journal (Nepalese Journal of Zoology), and also by organizing various programs such as, awareness campaigns, poster competition etc.

- Ample publications by faculty and students in highly reputed journals, exceptional pass rates of its students, low dropout rates, and remarkable job placements indicate exceptional quality of education at CDZ.

The department has well-equipped laboratories, adequate computer facilities, resourceful libraries, access to e-resources, rich zoological museum, and comprehensive teaching learning environment.

Faculty

- Faculty members are highly qualified and highly cited.

Laboratories

- CDZ offers well-equipped labs with modern and sophisticated instruments. It has two **fundamental labs, and five specialize labs; ecology and environment, entomology, fish biology and aquaculture, parasitology, genomics and molecular biology.**
- Genomics and molecular biology lab has sophisticated instruments including regular Thermal Cycler (PCR machine), spectrophotometer, Gel Documentation and Imaging System, Cryostat, centrifuge etc
- CDZ has separate microscopic unit equipped with more than 36 microscopes including compound, stereoscopic and phase contrast microscopes.
- A variety of field tools including range finders, binoculars, GPS units, altimeters, cameras, and canopy samplers are also available.

Overall, the labs are equipped with the tools useful for ecological fieldwork, limnological study, entomological collection and identification, parasite investigation, immunological study, molecular study and observation, monitoring, and collection of different faunal groups.

Museum

- The Central Department of Zoology Museum at Tribhuvan University (CDZMTU), managed by the CDZ, has maintained reputable national collections, including several type specimens (holotype and paratype) since its establishment.
- The museum houses an impressive array of specimens including invertebrates, freshwater fishes, amphibians, reptiles, birds and mammals.

Library

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Vision, Mission and Core values

Vision Statement

- To be a leading center of excellence in zoological education, research, and innovation, contributing to the sustainable development of society and the advancement of knowledge in the field of zoology.

Mission Statement

- To provide high-quality education and research opportunities in zoology, foster an environment of academic excellence, and address national and global challenges through innovative research, community engagement, and effective partnerships.

Core Values

- **Excellence:** Commitment to high standards in teaching, research, and service.
- **Innovation:** Embracing creativity and new ideas in research and learning.
- **Sustainability:** Promoting practices that support environmental conservation and biodiversity.
- **Collaboration:** Encouraging teamwork within the department and with external partners.
- **Integrity:** Upholding ethical standards in all academic and research activities.

Strategic Goals and Objectives

1. Enhance Academic Excellence

- **Objective 1.1:** Revise and update the curriculum to incorporate the latest advancements in zoology and related fields by 2025.
- **Objective 1.2:** Introduce new specialized courses and interdisciplinary programs to meet emerging needs in conservation, biotechnology, and environmental sciences.

- **Objective 1.3:** Improve student learning outcomes through active learning methodologies and enhanced use of technology.
2. **Promote Research and Innovation**
 - **Objective 2.1:** Establish research clusters focusing on key areas such as biodiversity, conservation biology, and molecular biology by 2026.
 - **Objective 2.2:** Increase research output by 20% through faculty and student-led projects, publications, and participation in national and international conferences.
 - **Objective 2.3:** Secure external funding and grants to support innovative research projects.
 3. **Strengthen Community Engagement and Outreach**
 - **Objective 3.1:** Develop partnerships with local communities, NGOs, and government agencies to promote biodiversity conservation and sustainable practices.
 - **Objective 3.2:** Launch community-based programs to raise awareness of environmental and wildlife issues by 2025.
 - **Objective 3.3:** Engage students in outreach activities to foster a sense of social responsibility and real-world impact.
 4. **Enhance Infrastructure and Learning Environment**
 - **Objective 4.1:** Upgrade laboratory facilities and procure modern equipment to support advanced research and practical learning by 2026.
 - **Objective 4.2:** Create digital learning resources, including online databases and virtual labs, to support students and faculty.
 - **Objective 4.3:** Improve library resources with updated textbooks, journals, and access to scientific databases.
 5. **Foster Faculty and Staff Development**
 - **Objective 5.1:** Implement professional development programs for faculty, including workshops, training, and opportunities for higher studies.
 - **Objective 5.2:** Enhance administrative efficiency through capacity-building programs for non-academic staff.
 - **Objective 5.3:** Encourage faculty to engage in collaborative research and academic exchanges with national and international institutions.
 6. **Improve Student Experience and Support Systems**
 - **Objective 6.1:** Establish mentorship programs to guide students in academics, research, and career planning.

- **Objective 6.2:** Create support services such as counseling, career guidance, and research internships to enhance student welfare.
- **Objective 6.3:** Strengthen alumni networks to provide students with access to career opportunities and mentorship.

Implementation Plan

- **Year 1 (2024):** Focus on updating the curriculum, initiating key research clusters, and beginning infrastructure upgrades.
- **Year 2 (2025):** Expand community engagement activities, enhance research outputs, and introduce new programs.
- **Year 3 (2026):** Initiate infrastructure enhancements, secure external funding for major research initiatives, and strengthen partnerships.
- **Year 4 (2027):** Evaluate progress, refine strategies, and scale successful initiatives.
- **Year 5 (2028):** Conduct a comprehensive review of the strategic plan's impact and develop the next five-year strategy.

Monitoring and Evaluation

- Establish a Strategic Planning Committee to monitor the progress of the plan.
- Conduct annual reviews and adjust objectives as needed to ensure the plan stays relevant and on track.
- Use key performance indicators (KPIs) to measure success in areas such as research output, student satisfaction, and community impact.

The evaluation of the 2019–2023 strategic plan

The evaluation of the 2019–2023 strategic plan for the Central Department of Zoology reveals mixed results. While progress has been made in certain areas, there are significant opportunities for improvement. This evaluation highlights key achievements, challenges, and recommendations for the future.

Key Achievements

- **Increased research output:** The department has seen a significant increase in the number of research papers published in peer-reviewed journals, as well as an improvement in the quality of these publications. This is indicative of the department's growing research capabilities and the dedication of its faculty and students.

- **Improved laboratory infrastructure:** The department has developed a new microscopic laboratory, and added equipment and facilities in its molecular laboratory enhancing the research environment and enabled faculty and students to conduct more advanced research.
- **Enhanced research and collaborations:** MOUs with different institutions and enhanced project acquisition have led to increased research opportunities for faculty and students. These collaborations have expanded the department's reach and exposed its members to new ideas and perspectives.

Challenges

- **Financial constraints:** Limited financial resources have hindered the department's ability to expand research activities, and invest in new infrastructure. This has made it difficult for the department to launch further activities.
- **Student enrolment:** Number of students applying for MSc is being decreased leading to lower-than-target enrollment numbers. This has impacted the department's revenue as well.
- **Limited outreach and engagement:** The department has struggled to effectively engage with the broader community and stakeholders. This has limited its ability to raise awareness of its activities, attract funding, and build partnerships.

Recommendations

- **Diversify funding sources:** The department should explore alternative funding avenues, such as grants, endowments, and industry partnerships. This will help to reduce its reliance on government funding and increase its financial stability.
- **Enhance student enrolment and retention:** The department should implement strategies to attract students towards zoology, and provide a high-quality student experience to attract and retain students. This will help to ensure the department's long-term sustainability.
- **Strengthen community engagement:** The department should develop outreach programs to increase awareness of its activities and foster partnerships with concerned organizations. This will help to build the department's reputation and attract support.
- **Upgrade curriculum:** The department should regularly assess its curriculum and make necessary adjustments to ensure relevance and meet student needs. The curriculum should align with LMDP which will help to prepare students for successful careers and enhance employability.