

# PRACTICAL STRATEGIES FOR EFFECTIVE FOREST AND WILDLIFE MANAGEMENT



# Preface

Forests play a crucial role in maintaining ecological balance, supporting biodiversity, and sustaining livelihoods for millions of people. In this context, capacity building for foresters and forest staff is of paramount importance. Equipping them with the necessary skills and knowledge enhances their ability to manage forest resources effectively, mitigate human-wildlife conflicts, and ensure sustainable conservation practices. Training initiatives provide field personnel with a deep understanding of legal frameworks, modern conservation techniques, and community engagement strategies, enabling them to address challenges efficiently and responsibly.

This training booklet has been developed as a comprehensive guide for foresters and field staff working in Kendai Range, Korba District. It aims to enhance their understanding of forest and wildlife management, legal frameworks, human-wildlife conflict resolution, and sustainable resource utilization. The booklet covers various topics, including the importance of minor forest produce (MFP), integrated wildlife management planning, and the role of certification in responsible forestry. Additionally, it presents real-world case studies that highlight successful interventions and best practices. Recognizing that learning is a continuous process, this booklet is designed to serve as a practical reference, encouraging ongoing education and adaptation to emerging challenges in forestry and wildlife conservation.

The expected outcome of this training is to develop a skilled and knowledgeable workforce capable of implementing sustainable forest management practices while ensuring the well-being of both the environment and local communities. By fostering collaboration between forest officials, local communities, and other stakeholders, this training will contribute to a more resilient and ecologically balanced Kendai Range. Through informed decision-making and proactive conservation efforts, we aspire to achieve long-term sustainability and harmonious coexistence between humans and wildlife in Korba District.

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## **About This Booklet**

This Training Booklet for Foresters is designed to equip field officers and forest staff with essential knowledge and practical strategies for effective forest and wildlife management. Covering key aspects such as forest laws, human-wildlife conflict management, sustainable resource use, and community-based conservation, the booklet provides a structured approach to handling real-world challenges in forestry.

Through case studies from the Kendai Range, Korba District, this guide highlights practical examples and proven conflict mitigation strategies. It also emphasizes the significance of forest certification, fair trade, and legal frameworks in ensuring sustainable forest governance.

With a focus on capacity building and legal awareness, this booklet serves as a comprehensive resource to support foresters in their crucial role of conserving biodiversity, managing wildlife habitats, and fostering community participation.

# BOOKLET OUTLINE

<b>Chapter</b>	<b>Topic</b>
1.	Introduction
2.	Key objective of the awareness and educational program
3.	Overview of Kendai Range and Katghora Forest Division
4.	Legal Framework for Integrated Wildlife Management Plan (IWMP)
5.	Legal Framework and Policies for Forest and Wildlife Protection in Kendai Range
6.	Human-Wildlife conflict management in kendai range, Korba
7.	Sustainable Use of Forest resource and Minor Forest Produce (MFP) in Kendai Range, Korba
8.	Case Studies from Kendai Range, Korba District

# CHAPTER 1 : INTRODUCTION

## *1.1 Overview of the Awareness and Educational Program*

The forests of Kendai Range in the Katghora Forest Division, under Korba Division, are crucial ecological zones that support biodiversity and local communities. To enhance sustainable forest management, this awareness and educational program aims to equip forest staff with the necessary knowledge and skills to address conservation challenges effectively.

## *1.2 Importance of Training Forest Staff*

Forest staff play a vital role in managing and protecting forest resources. Training programs improve their understanding of conservation practices, community engagement, and sustainable forest management.

## *1.3 Scope and Coverage of the Program*

The program will cover:

- Assessment of current forest conditions
- Legal framework and policies
- Human wildlife conflict
- Sustainable forest practices
- Integrated Wildlife Management Plan (IWMP)

## **CHAPTER 2: KEY OBJECTIVE OF THE AWARENESS AND EDUCATIONAL PROGRAM**

### *2.1 Enhance Knowledge*

Understanding forest biodiversity is fundamental for conservation efforts. The training will:

*Educate staff about the local species of birds, mammals, plants, and their ecological significance*

Kendai Range, located in the Katghora Forest Division of Korba District, is home to a rich diversity of flora and fauna. The region includes dense Sal (*Shorea robusta*) forests, interspersed with Bamboo (*Dendrocalamus strictus*), Teak (*Tectona grandis*), and Mahua (*Madhuca indica*), which provide habitat and food sources for various species.

Among the prominent fauna, the region supports Leopard (*Panthera pardus*), Sloth Bear (*Melursus ursinus*), Indian Gaur (*Bos gaurus*), Wild Boar (*Sus scrofa*), and several species of deer such as the Sambar (*Rusa unicolor*) and Spotted Deer (*Axis axis*). Bird species like Indian Peafowl (*Pavo cristatus*), Grey Hornbill (*Ocyrceros birostris*), and various raptors contribute to the region's ecological balance. Understanding their ecological roles—such as seed dispersal, pest control, and habitat stabilization—is crucial for effective forest management.

### *Highlight the interdependence of species and their roles in maintaining a balanced ecosystem*

The ecosystem in Kendai Range operates through complex interdependencies. Apex predators like leopards regulate prey populations, preventing overgrazing that can lead to habitat degradation. Herbivores like deer and gaur maintain vegetation balance, while scavengers such as vultures help prevent disease outbreaks by consuming carcasses. Similarly, fruit-bearing trees like Mahua and Ber (*Ziziphus mauritiana*) are vital for frugivorous animals, ensuring seed dispersal and forest regeneration.

By understanding these intricate relationships, trainees can adopt conservation strategies that maintain the delicate balance of the ecosystem.

### *Provide insights into identifying keystone species and their conservation status*

Keystone species are those that have a disproportionate effect on their environment relative to their abundance. In Kendai Range, the Sloth Bear plays a crucial role in seed dispersal, while the Leopard helps regulate herbivore populations. The Indian Gaur, a significant grazer, influences the composition of grasslands and forest undergrowth.

Conservation efforts should prioritize these species by:

- Monitoring their populations and habitat conditions
- Implementing anti-poaching measures
- Creating awareness among local communities about their importance

The conservation status of these species under the IUCN Red List must be continuously assessed to ensure they are not at risk due to habitat destruction, illegal hunting, or climate change.

### *Biodiversity assessment techniques, including camera trapping and GIS mapping*

To effectively monitor biodiversity and track wildlife populations in Kendai Range, the program can introduce advanced survey techniques such as:

- ♦ **Camera Trapping:** Installation of motion-sensitive cameras in strategic locations to monitor elusive species like leopards and sloth bears. These cameras provide insights into animal behavior, population dynamics, and movement patterns.
- ♦ **GIS Mapping:** Geographic Information System (GIS) technology can be used to map vegetation cover, identify wildlife corridors, and analyze habitat fragmentation. GIS data helps in planning conservation strategies and mitigating human-wildlife conflicts.

- ♦ **Acoustic Monitoring:** Recording animal calls, especially for nocturnal species, to assess biodiversity without direct visual confirmation.
- ♦ **Line Transect and Quadrant Methods:** Conducting systematic surveys to estimate wildlife populations and vegetation density.

## **CHAPTER 3: OVERVIEW OF KENDAI RANGE AND KATGHORA FOREST DIVISION**

### *3.1 Geographical and Ecological Overview*

Kendai Range, located within the Katghora Forest Division of Korba District, is characterized by a mix of tropical dry deciduous and moist deciduous forests. The terrain consists of hilly landscapes, river valleys, and dense vegetation. The Hasdeo River, which flows through the region, plays a crucial role in sustaining local biodiversity.

The climate of the region includes hot summers, monsoon rains, and cool winters. The combination of climatic and geographical factors supports diverse flora and fauna, making it an important ecological zone.

### *3.2 Current Status of Forest Resources*

- Flora: Sal (*Shorea robusta*), Teak (*Tectona grandis*), Mahua (*Madhuca indica*), and Bamboo (*Dendrocalamus strictus*)
- Fauna: Leopards, Sloth Bears, Wild Boars, and various avian species
- Challenges: Deforestation, illegal mining, and human-wildlife conflicts

### *3.3 Major Fauna in the Region*

- Leopard (*Panthera pardus*) – Apex predator regulating prey populations Sloth
- Bear (*Melursus ursinus*) – Plays a role in seed dispersal
- Indian Gaur (*Bos gaurus*) – A key herbivore influencing plant growth
- Spotted Deer (*Axis axis*) and Sambar Deer (*Rusa unicolor*) – Crucial prey base for predators Avian
- Species – Peafowls, hornbills, and raptors contributing to ecological balance

## **CHAPTER 4: LEGAL FRAMEWORK FOR INTEGRATED WILDLIFE MANAGEMENT PLANNING (IWMP)**

### *4.1 Introduction*

The preparation of an Integrated Wildlife Management Plan (IWMP) must be in accordance with various legal provisions that ensure the protection of wildlife, conservation of forests, and recognition of community rights. These legal frameworks provide guidelines for sustainable wildlife management while balancing conservation efforts with human activities.

#### *Wildlife Protection Act, 1972*

This is India's primary law governing the protection of wild animals, birds, and their habitats. It lays the foundation for the declaration and management of protected areas such as national parks and wildlife sanctuaries. The Act strictly prohibits hunting and poaching of endangered species and mandates severe penalties for violations. It also empowers authorities to regulate activities within forest areas to prevent habitat destruction. For an IWMP, it is crucial to ensure that all conservation efforts comply with this Act, especially in protecting threatened species and preventing illegal activities like logging and encroachments.

**The Wildlife Protection (Amendment) Act, 2022**, introduced several key changes to strengthen wildlife conservation:

- **Rationalization of Schedules:** The amendment reduced the number of schedules from six to four, streamlining species protection classifications. There is now one schedule for specially protected animals, another for specially protected plants, a third for species subject to regulated trade (aligned with CITES), and

a general category for all other species.

- **Stronger Provisions for Endangered Species:** The Act enhances penalties for illegal wildlife trade and poaching, imposing fines and imprisonment for violators.
- **Increased Alignment with CITES:** The amendment ensures better compliance with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), requiring strict regulation of trade in wildlife and wildlife products.
- **Regulation of Invasive Species:** The Act now empowers authorities to regulate and control invasive species that threaten native biodiversity.
- **Enhanced Community Involvement:** The amendment strengthens provisions related to conservation reserves and community reserves, encouraging greater participation from local communities in biodiversity protection.

### *Environment Protection Act, 1986*

The Environment Protection Act, 1986, is one of the most powerful environmental laws in India, serving as an umbrella legislation for safeguarding ecosystems. It grants the government broad authority to regulate activities that may harm biodiversity, control pollution, and enforce conservation measures.

A key outcome of this Act is the establishment of the Pollution Control Boards, which oversee air, water, and environmental quality standards. Any Integrated Wildlife Management Plan (IWMP) must comply with this Act to ensure habitat conservation aligns with broader ecological concerns like pollution control and sustainable resource management.

### *Forest Conservation Act, 1980*

The Forest Conservation Act, 1980, regulates the diversion of forest land for non-forest purposes, ensuring that deforestation is minimized and any land-use changes receive central government approval. It plays a crucial role in Integrated Wildlife Management Plans (IWMP) by safeguarding essential wildlife corridors and promoting afforestation to compensate for forest loss.

The 2023 amendment introduces key reforms, including exempting certain forest lands from clearance requirements, streamlining project approvals for infrastructure development, and emphasizing afforestation and sustainable land use. These changes impact conservation planning by balancing development with ecological integrity.

### *Biological Diversity Act, 2002*

This Act focuses on conserving biodiversity and ensuring the sustainable use of biological resources. It establishes mechanisms for monitoring biodiversity and promotes equitable sharing of benefits derived from natural resources. When drafting an IWMP, it is important to integrate biodiversity conservation strategies, ensuring the protection of native species and ecosystems while also involving local communities in conservation efforts.

### *Forest Rights Act, 2006*

The Forest Rights Act (FRA), 2006, is a landmark legislation that restores the rights of Scheduled Tribes and traditional forest dwellers over the land and resources they have historically depended upon. It grants them legal ownership, access to minor forest produce (MFP), and

participation in forest conservation and management.

In true letter and spirit, the FRA has empowered tribal communities, ensuring they are not mere dependents but active stakeholders in forest governance. However, challenges such as delayed implementation, bureaucratic hurdles, and conflicts with conservation policies have sometimes hindered its full potential. For an Integrated Wildlife Management Plan (IWMP), recognizing and integrating tribal rights is crucial. Conservation efforts should complement, rather than restrict, their livelihoods, fostering a harmonious balance between wildlife protection and the well-being of indigenous communities.

#### *National Wildlife Action Plan (2017-2031)*

The National Wildlife Action Plan provides a structured approach to wildlife conservation, emphasizing habitat restoration, species protection, and addressing human-wildlife conflict. An IWMP should align with the objectives outlined in this policy to ensure that conservation efforts are in harmony with national priorities and long-term sustainability goals.

### *Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA)*

PESA empowers tribal communities to govern and manage their resources in Scheduled Areas. Since many forest-dependent communities reside in these regions, their involvement in wildlife management is essential. An IWMP should incorporate traditional knowledge systems and encourage participatory governance to make conservation efforts more effective.

### *Right to Information Act (RTI), 2005*

Transparency and public participation are key to effective wildlife management. The RTI Act ensures that information regarding conservation policies, management decisions, and environmental impact assessments is accessible to the public. Including mechanisms for information sharing in an IWMP will enhance accountability and encourage greater community engagement in conservation initiatives.

### *Compensatory Afforestation Fund Management and Planning Authority (CAMPA)*

The Compensatory Afforestation Fund Management and Planning Authority (CAMPA) was established to ensure effective utilization of funds collected for afforestation and forest conservation. The CAMPA Act, 2016, provided a legal framework for managing these funds at the national and state levels, ensuring that diverted forest land is compensated with afforestation efforts.

In 2018, guidelines were issued to strengthen forest restoration and conservation, focusing on land availability, selection of native species, and active community participation. For Kendai Range, Korba District, CAMPA funds can be strategically used for:

- ✓ Afforestation and habitat restoration in degraded forest areas
- ✓ Mitigation of human-wildlife conflict through eco-friendly barriers and awareness programs
- ✓ Enhancing biodiversity conservation by planting native species
- ✓ Capacity building of forest staff for better management practices

By aligning local Integrated Wildlife Management Plans (IWMPs) with CAMPA guidelines, Kendai Range can achieve sustainable forest management, ensuring both ecological balance and livelihood support for forest-dependent communities.

### *Working Plan Management and National Working Plan 2023*

A Working Plan is the foundation of scientific forest management, providing structured guidelines for conservation, afforestation, and sustainable resource utilization. Every forest division is required to prepare and follow a Working Plan, ensuring that management prescriptions align with ecological needs, socio-economic considerations, and legal frameworks. These plans serve as a blueprint for forest protection, wildlife conservation, and sustainable harvesting of forest resources while maintaining biodiversity and ecosystem services.

The National Working Plan 2023 introduces updated methodologies and modern conservation strategies, emphasizing climate resilience, biodiversity conservation, community participation, and sustainable forest management. It ensures that all forestry operations are in line with evolving environmental policies, global sustainability goals, and national commitments such as carbon sequestration and afforestation targets.

For Kendai Range, Korba District, adherence to the latest Working Plan (2023) is essential for effective forest governance. It provides a structured approach to wildlife habitat management, human-wildlife conflict mitigation, soil and water conservation, and sustainable livelihood generation for local communities. By implementing the prescribed measures under this scientific framework, forest officials can ensure long-term ecological balance while addressing contemporary conservation challenge

## **CHAPTER 5: LEGAL FRAMEWORK AND POLICIES FOR FOREST AND WILDLIFE PROTECTION IN KENDAI RANGE**

### *5.1 Objective*

The objective of this chapter is to equip forest staff with a comprehensive understanding of the legal rights and responsibilities related to the protection and conservation of forests and wildlife. By familiarizing them with key legislative frameworks, staff can effectively enforce laws, prevent illegal activities such as poaching and deforestation, and safeguard forest-dependent communities' rights.

### *5.2 Legal Framework and Policies*

#### *Wildlife Protection Act, 1972*

The Wildlife Protection Act, 1972, is a crucial piece of legislation that provides the legal foundation for the conservation of wildlife and their habitats in India. It establishes protected areas such as national parks, wildlife sanctuaries, conservation reserves, and community reserves. Under this Act, hunting of endangered species is strictly prohibited, and stringent penalties are imposed on offenders.

In the Kendai Range, where forests serve as a habitat for key wildlife species such as elephants, tigers, leopards, and sloth bears, strict enforcement of this law is essential. Forest staff play a critical role in preventing poaching, illegal wildlife trade, and habitat destruction. The Act also provides the framework for compensating local communities affected by human-wildlife conflicts.



### *Forest Conservation Act, 1980*

The Forest Conservation Act, 1980, was enacted to regulate deforestation and ensure afforestation efforts are conducted sustainably. The Act restricts the diversion of forest land for non-forest purposes without prior approval from the central government. It mandates afforestation as a compensatory measure for forest land that is converted for developmental activities.

Kendai Range, being part of the dense forest ecosystem of Korba, faces increasing pressure from mining and infrastructure projects. Forest staff must ensure that any land diversion adheres to the legal requirements and that compensatory afforestation is properly implemented. Monitoring afforestation projects and preventing unauthorized clearing of forests are key responsibilities under this law.

### *Forest Rights Act, 2006*

The Forest Rights Act (FRA), 2006, recognizes the rights of forest-dwelling communities over forest resources and promotes their active participation in conservation efforts. The Act grants individual and community rights to land and minor forest produce (MFP), allowing local communities to access and manage forest resources sustainably.

In Kendai Range, many tribal and forest-dependent communities rely on minor forest produce such as tendu leaves, honey, bamboo, and medicinal plants. The Act empowers these communities by formalizing their rights over these resources. Forest staff must work closely with local stakeholders to ensure that these rights are upheld while maintaining ecological balance. Additionally, the role of Forest Rights Committees (FRCs) in facilitating community engagement in forest governance is crucial.

### *Role of Forest Department*

Forest officials are entrusted with enforcing forest laws, preventing illegal activities, and ensuring sustainable forest management. Their responsibilities in Kendai Range include:

- ◆ **Preventing Illegal Logging and Encroachment:** Monitoring Forest areas to detect and prevent unauthorized tree felling and land encroachment. Regular patrolling is essential to curb deforestation and safeguard wildlife habitats.
- ◆ **Combating Poaching and Wildlife Trafficking:** Investigating wildlife crimes, apprehending poachers, and coordinating with law enforcement agencies to curb the illegal wildlife trade.

- ♦ **Facilitating Community Participation:** Engaging with local communities, forming Joint Forest Management Committees (JFMCs), and supporting their rights under the Forest Rights Act.
- ♦ **Ensuring Compliance with Afforestation Policies:** Supervising compensatory afforestation projects and ensuring compliance with land-use policies to maintain ecological balance.

# CHAPTER 6: HUMAN-WILDLIFE CONFLICT MANAGEMENT IN KENDAI RANGE, KORBA

## *Objective*

The Kendai Range of Korba is known for its rich biodiversity, including significant populations of elephants, tigers, leopards, sloth bears, and other wildlife. Due to habitat fragmentation, deforestation, and expanding human settlements, human-wildlife conflict (HWC) has become a pressing issue.

This training booklet aims to equip forest staff with the knowledge and skills necessary to effectively address and mitigate conflicts, particularly with elephants, tigers, and leopards, ensuring the safety of both humans and wildlife.

## *6.1 Types of Human-Animal Conflict (HAC) in Kendai Range*

The Kendai Range experiences several types of human-wildlife conflicts, including:

### **1. Crop Damage**

- Elephant herds frequently migrate through Kendai, damaging crops such as paddy, maize, and pulses.
- Wild boars and deer also contribute to agricultural losses, particularly in areas near forest edges.
- Farmers use traditional deterrents like firecrackers and bamboo fences, but these are often ineffective.

## **2. Livestock Predation**

- Leopards and tigers in Kendai prey on cattle, goats, and poultry, leading to economic losses for villagers.
- Livestock grazing near dense forests and water sources increases the risk of predation.
- Cases of missing livestock are often linked to nocturnal leopard activity.

## **3. Human Injuries and Fatalities**

- Elephant encounters, particularly during seasonal migrations, pose a significant threat to villagers.
- Sloth bear attacks are also common in forested areas where villagers collect firewood and mahua flowers.
- Accidental encounters with tigers and leopards, especially near water sources, have led to injuries in the past.

## **4. Retaliatory Killings**

- Fear and financial losses lead to retaliatory actions, such as poisoning or electrocution of elephants and large carnivores.
- Such actions disrupt the ecological balance and increase conflict incidents.
- Addressing local grievances through timely compensation and awareness programs is crucial.

## *6.2. Elephant and Tiger Behavior in Kendai Range*

Understanding the behavior of key wildlife species in Kendai is essential for effective conflict management.

### Elephant Behavior

- Kendai Range is part of an important elephant corridor, with seasonal migration patterns influenced by water availability and food sources.
- Due to habitat loss, elephants frequently enter villages such as Kendai, Katghora, and Lemru in search of food.
- Peak conflict months: July to December (monsoon and post-harvest season).
- Elephants are generally peaceful but become aggressive when separated from their herd, injured, or provoked.



*The enduring challenge of mitigating Human-elephant Conflict*

### *Tiger and Leopard Behavior*

- Tiger population in Kendai is scattered, but their movement is often recorded near dense forests and riverbanks.
- Leopards are highly adaptable and often venture close to human settlements in search of easy prey, such as stray dogs and livestock.
- Major conflict zones: Villages near Kendai and Katghora, especially those close to water bodies and dense forests.

### *Human-wildlife conflict*



### *6.3. Conflict Mitigation Strategies for Kendai Range*

Effective conflict management requires a mix of modern techniques and community-based strategies:

#### **1. Installation of Solar-Powered Electric Fences**

- Electric fencing around high-conflict villages can prevent elephants from entering farmlands.
- Key areas for fencing: Villages near Kendai forest and Lemru elephant corridor.
- Regular maintenance and community involvement are crucial for success.

#### **2. Early Warning Systems**

- SMS Alerts & Community Radio: Real-time updates on elephant movement to warn villagers.
- Forest Watch Teams: Deployment of trained community members to monitor elephant and tiger activity.
- Use of Drone Surveillance: Helps track elephant herds and detect wildlife movement near villages.

#### **3. Physical Barriers & Repellents**

- **Trenches and Bio-fences:** Planting chili and agave plants as natural deterrents.
- **Beehive Fences:** Beehives placed along farms to deter elephants (as elephants avoid bees).
- **Noisemakers:** Use of traditional methods like beating drums and hanging metal sheets to create deterrent sounds.

#### **4. Community Engagement & Awareness Programs**

- **Formation of Village Response Teams:** Training local youth to assist in conflict situations.
- **Educational Workshops:** Teaching farmers about safe livestock enclosures and alternative cropping patterns.
- **Compensation Schemes:** Ensuring quick and fair compensation for crop and livestock losses to prevent retaliatory killings.

#### **6.4. Community Outreach Programs**

##### **1. Village Awareness Meetings**

- Conduct regular meetings to educate communities on wildlife safety and prevention strategies.
- Use audio-visual materials, posters, and real-life case studies to improve understanding.

##### **2. Training on Safe Practices**

- Encouraging farmers to avoid night-time field visits and secure livestock in proper enclosures.
- Promoting non-lethal deterrents such as chili-based repellents and bio-fencing.

##### **3. Forest Staff Collaboration with Local Leaders**

- Involving panchayat leaders, school teachers, and NGOs to spread awareness.

- Organizing workshops in high-conflict villages like Kendai, Katghora, and Lemru



**Community engagement and awareness Program to mitigate Human-animal Conflict**

## **CHAPTER 7: SUSTAINABLE USE OF FOREST RESOURCES AND MINOR FOREST PRODUCE (MFP) IN KENDAI RANGE, KORBA**

### *7.1 Objective*

The Kendai Range of Korba is rich in forest resources and Minor Forest Produce (MFP), which play a crucial role in supporting the livelihoods of local communities, particularly tribal populations. Sustainable management of these resources is essential to ensure long-term availability, biodiversity conservation, and economic benefits for forest-dependent communities.

This chapter of training aims to:

- Promote sustainable harvesting of MFPs to prevent over-extraction and habitat degradation.
- Strengthen community-based forest resource management.
- Introduce forest certification and fair-trade mechanisms to ensure better market access and equitable returns for local harvesters.

### *7.2. Sustainable Harvesting of MFPs in Kendai Range*

The forests of Kendai Range provide various MFPs, including:

- **Tendu Leaves** (used for bidi-making)
- **Honey** (harvested from wild bee colonies)
- **Bamboo** (used for construction, handicrafts, and paper production)
- **Lac** (used in natural varnish, dyes, and cosmetics)
- **Mahua Flowers & Seeds** (used for food, oil extraction, and traditional liquor)

- **Tamarind, Amla, and Harra** (medicinal and food products)

Sustainable harvesting practices are critical to ensuring that these resources remain available for future generations while maintaining forest health.

### *Best Practices for Sustainable MFP Harvesting*

#### **1. Tendu Leaves**

- Leaves should be plucked selectively and in a way that allows regrowth.
- Avoid stripping entire branches, as this weakens the plant.
- Regulated harvesting schedules should be followed to avoid depletion.

#### **2. Honey Collection**

- Traditional honey hunters often destroy bee colonies while extracting honey, leading to declining bee populations.
- Sustainable techniques include using smoke-free methods, leaving part of the hive intact, and avoiding honey collection during the breeding season.
- Encouraging beekeeping as an alternative to wild honey harvesting can ensure sustainable supply.

#### **3. Bamboo Harvesting**

- Only mature bamboo (3-4 years old) should be harvested.
- Cutting should be done from the base, leaving younger shoots for regeneration.
- Implement rotational harvesting to prevent over-extraction in any one area.

#### 4. Lac Cultivation

- Lac insects are reared on host trees such as palash, ber, and kusum.
- Sustainable practices include pruning trees after lac harvest and protecting host trees from overuse.
- Community-based lac processing can enhance income opportunities.

#### 5. Mahua and Medicinal Plants

- Harvest only fallen mahua flowers to ensure sustainability.
- Medicinal plants like Amla, Harra, and Bahera should be collected selectively, avoiding root damage.
- Promote community nurseries to cultivate medicinal plants, reducing pressure on wild sources.



*Tendu leaves collection by locals*

## *7.3. Community-Based Resource Management*

### *Role of Local Communities in Sustainable Forest Management*

- Indigenous and tribal communities of Kendai Range have traditional knowledge of forest resource use.
- Strengthening **Forest Rights Committees (FRCs)** and **Joint Forest Management Committees (JFMCs)** can improve local participation in conservation.
- Involvement of **women's self-help groups (SHGs)** in MFP collection, processing, and marketing enhances sustainability.

### *Empowering Local Communities for Sustainable Harvesting*

#### **1. Capacity-Building Workshops**

- Training programs on sustainable harvesting techniques for villagers.
- Awareness campaigns on biodiversity conservation.

#### **2. Community-Based Enterprises**

- Establishing **village-level MFP processing units** for value addition (e.g., honey filtering, bamboo handicrafts, lac processing).
- Linking these enterprises with government schemes like **Van Dhan Vikas Kendra** for financial and technical support.

#### **3. Eco-Labeling and Branding of Forest Products**

- Developing **local branding** for sustainably harvested MFPs.

- Connecting communities with **eco-friendly markets** and direct buyers.

#### **4. Traditional Knowledge & Conservation**

- Documenting **tribal knowledge** on medicinal plants and sustainable harvesting methods.
- Encouraging **community-led conservation zones** where harvesting is regulated.



**Role of Tribals in Forest Protection, development and conservation**

#### *7.4. Forest Certification and Fair Trade What is Forest Certification?*

Forest certification ensures that forest products are sourced sustainably, benefiting both the environment and local communities. Certification schemes relevant to Kendai include PEFC (Programme for the Endorsement of Forest Certification), with NCCF (Network for Certification and Conservation of Forests) serving as the national governing body of PEFC in India. NCCF administers India's Sustainable Forest Management (SFM) and Trees Outside Forests (ToF) certification programs. Additionally, FSC (Forest Stewardship Council) also provides different certification frameworks. Certification helps regulate harvesting practices, ensures fair compensation for forest-dependent communities, and opens access to ethical and international markets.

A significant government initiative in India is PRAMAN, developed to promote sustainable sourcing, responsible trade, and market access for forest-based products. As an officially recognized certification system, PRAMAN ensures compliance with environmental and social standards, supporting India's goal of sustainable forestry and ethical trade.

By adopting certification standards, forests in Kendai Range can secure better market opportunities, improve forest governance, and contribute to global sustainability goals while safeguarding local communities and wildlife.

## *Benefits of Certification for Kendai Range*

- Ensures Sustainable Use of MFPs: Certified forests follow strict guidelines for resource extraction.
- Higher Market Value: Certified products attract premium prices in national and international markets.
- Better Livelihood Opportunities: Certification encourages ethical trade practices, ensuring fair wages for collectors.
- Prevents Illegal Exploitation: Helps in monitoring over-extraction and illegal trade of forest products.

## *Steps for Implementing Certification in Kendai Range*

### **1. Baseline Study**

- Assessing current harvesting practices and their impact on forest health.

### **2. Training and Capacity Building**

- Educating communities and forest officials on certification standards.

### **3. Registration & Auditing**

- Applying for certification and conducting independent audits.

### **4. Market Linkages**

- Connecting certified MFPs with ethical and organic markets.

## *Fair Trade & Market Access*

- Ensuring that MFP collectors receive fair compensation through direct trade and cooperatives.
- Avoiding exploitation by middlemen through government-

backed procurement programs like the Minimum Support Price (MSP) for MFPs.

- Collaborating with e-commerce platforms for selling forest products directly to consumers.

## *Conclusion*

The sustainable use of forest resources and MFPs in Kendai Range is critical for balancing ecological conservation with local livelihoods. By adopting sustainable harvesting practices, empowering local communities, and promoting forest certification, we can ensure the long-term availability of forest resources while improving the economic well-being of forest-dependent populations.

This training will enable forest staff and community members to develop a **holistic approach to forest management**, ensuring sustainability, economic resilience, and conservation of Kendai's rich biodiversity.

## CHAPTER 8 : CASE STUDIES OF HUMAN-ANIMAL CONFLICT

Human-animal conflicts in the Kendai Range of Korba District, Chhattisgarh, have posed significant challenges to both local communities and wildlife conservation efforts. These conflicts often involve encounters between humans and elephants, leading to property damage, injuries, and fatalities. Below are some notable incidents highlighting the severity of these conflicts:

### *8.1. Elephant Herd in Kendai Range (April 2024)*

#### *Incident*

In April 2024, multiple elephant herds entered the Kendai Range, creating panic among villagers. The elephants damaged standing crops and destroyed a few houses in the nearby villages of Sarvadan, Kendai, and Jatraidand. Due to their proximity to human settlements, the risk of direct confrontations increased. Villagers, fearing for their safety, resorted to lighting fires and using loud noises to drive the elephants away, which only agitated the animals further.

#### *Measures Taken*

- **Monitoring & Early Warning System:** The Forest Department deployed field staff to track elephant movement and issue real-time alerts to the affected villages.
- **Community Engagement:** Awareness meetings were conducted in local villages, advising residents on safe practices, such as avoiding nighttime movements and securing food sources.

- Intervention by the Elephant Task Force: A team of trained forest guards used trained elephants (kumkis) and firecrackers at controlled levels to guide the herds back into the forest.
- Installation of Solar Fencing: To prevent future incursions, officials initiated a project to install solar-powered fencing around high-conflict zones.

### *Outcome*

- The elephants gradually moved back to the forest, preventing further damage.
- No human casualties were reported, though some property loss occurred.
- Solar fencing helped reduce the frequency of elephants straying into agricultural fields in the following months.
- Villagers gained better awareness of elephant behavior and non-violent mitigation methods.

## ***8.2. Human Fatality Due to Elephant Attack (2023)***

### *Incident*

In late 2023, a farmer in Kendai Range lost his life in an elephant attack while guarding his crops at night. The victim unknowingly came too close to a feeding elephant, which felt threatened and charged.

## *Measures Taken*

- **Compensation for the Family:** The Chhattisgarh government provided financial compensation to the victim's family under the state's human-elephant conflict relief scheme.
- **Implementation of Night Patrolling:** Forest officials, along with local volunteers, began patrolling high-risk zones during nighttime hours to prevent similar encounters.
- **Establishment of Crop Protection Committees:** These committees worked on alternative conflict mitigation measures, including chili-based deterrents and strategic crop diversification to reduce elephant attraction.

## *Outcome*

- Enhanced vigilance in elephant-prone areas reduced similar incidents in the following months.
- Farmers adopted non-violent deterrent methods, such as growing less attractive crops like ginger and chili in buffer zones.
- Increased community participation in early warning systems.

### *8.3. Poaching Incident in Korba District (July 2024)*

#### *Incident*

Five individuals from Damia village in Korba District were arrested for poaching wild boar and cheetal (spotted deer) using live electric wires. The carcasses were recovered from the forest, and further investigations revealed that the accused had been involved in illegal wildlife hunting for commercial trade.

#### *Measures Taken*

- **Legal Action:** The poachers were booked under the Wildlife Protection Act, 1972, and the case was fast-tracked.
- **Increased Anti-Poaching Patrols:** The Forest Department increased foot patrols in identified poaching hotspots, particularly in Kendai and nearby regions.
- **Community Sensitization:** Local meetings were conducted to educate villagers about the legal consequences of poaching and the importance of wildlife conservation.
- **Collaboration with Local Tribes:** The government encouraged alternative livelihood opportunities, such as employment in eco-tourism and sustainable minor forest produce collection.

## *Outcome*

- The arrested poachers faced legal consequences, serving as a deterrent to others.
- Surveillance and monitoring in the Kendai Range were strengthened, reducing poaching cases in the following months.
- Some former poachers were provided alternative livelihood support through schemes like Van Dhan Vikas Kendra.

## *Overall Learnings from These Cases*

- **Prevention Through Awareness:** Educating local communities about wildlife behavior and safety measures significantly reduces conflict risks.
- **Early Detection & Response:** A well-established early warning system helps in effective mitigation of conflicts.
- **Sustainable Conflict Resolution:** Non-violent deterrents, such as solar fencing and strategic crop choices, provide long-term solutions to human-animal conflicts.
- **Law Enforcement & Community Involvement:** Strict enforcement of wildlife laws, combined with alternative livelihood support, discourages illegal activities like poaching

