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The Chakpi River Action Plan

A participatory approach for the management of Chakpi River focusing on the conservation and sustainable use of aquatic resources in Manipur

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Protection and Sustainable Management of Aquatic Resources in the Northeastern Himalayan Region of India (NERAQ)

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1. Introduction

This Action Plan has been formulated to facilitate the conservation and sustainable management of aquatic resources in the Chakpi River, as outlined in the "A Strategy for Restoring Chakpi River in Chandel, Manipur" initiative. Additionally, it aims to establish a citizen science-based river monitoring program, which has been instrumental in engaging local communities in river restoration efforts worldwide. Building upon the success of participatory surveys conducted in the villages of Lambung, Monsang Pantha, Mantri Pantha, and Japhou, this plan seeks to further these efforts.

The primary objective of this participatory approach is to identify sections of the Chakpi River that can be rejuvenated. This involves designating conservation zones, enhancing riparian habitats and aquatic resources, and alleviating pressure on the river's resources by offering alternative livelihood options. By providing a platform for community engagement and decision-making, this initiative aims to empower residents to actively contribute to the restoration and sustainable management of the Chakpi River.

This document outlines a series of actions aimed at revitalizing the health of the Chakpi River stretch that flows through the villages of Lambung, Monsang Pantha, Mantri Pantha, and Japhou. It emphasizes the importance of restoring the river's ecosystem while also exploring opportunities for alternative livelihoods that provide access to natural green spaces. These actions are designed to be implemented collaboratively with local communities, ensuring that their perspectives and needs are taken into account throughout the process.

Furthermore, this Action Plan recognizes the valuable contributions of other organizations involved in Chakpi River restoration efforts. By fostering partnerships and collaboration, it seeks to leverage collective expertise and resources to achieve common conservation goals.

This Action Plan represents a pragmatic and inclusive approach to the conservation and sustainable management of the Chakpi River. Through community engagement, scientific monitoring, and strategic partnerships, it aims to protect this vital natural resource for the benefit of present and future generations in the region.

The plan:

1. Aligns with the objectives of the Protection and Sustainable Management of Aquatic Resources in the North-Eastern Himalayan Region of India (NERAQ) by developing participatory management concepts for aquatic ecosystems along the Chakpi River.
2. Initiates the establishment of conservation zones to protect the aquatic resources of the Chakpi River stretch within the villages of Lambung, Monsang Pantha, Mantri Pantha, and Japhou, ensuring the preservation of critical habitats and biodiversity.
3. Supports a citizen science approach to effectively manage the Chakpi River, engaging local communities in data collection and monitoring efforts and establish a community information centre dedicated to the conservation of the Chakpi River.
4. Aims to revitalise the traditional knowledge on aquatic resource uses and its management practices that were used earlier. These include

    a) Certain tree branches, such as Aerhuw (Monsang), Ngoi, Pra-Pkang, Kru-Huk (Lamkang), or Aruhe Dun/Phuwn (Anal), are laid horizontally along river paths, their fresh leaves creating barriers that trap fish. The trapped fish are then collected with ease.

    b) In Chandel, the Monsang and Anal communities practice unique, traditional fishing techniques that carry deep cultural significance. These communal methods not only strengthen social bonds and foster unity but also exemplify sustainable, eco-friendly approaches to fishing. By relying on time-honored practices and tools, these communities preserve invaluable traditional knowledge and cultural heritage for future generations.

    The aquatic resources harvested through these traditional methods fulfill various needs, including nutrition, rituals, medicinal use, and economic sustenance. Furthermore, many of these species hold symbolic significance, deeply embedded in the customs and traditions of the local communities, reflecting their rich cultural heritage.

5. Contributes to the implementation of alternative livelihood options for residents, aiming to reduce dependency on the river's resources and promote sustainable practices.

Further, it is worth noting that:

Traditional communities heavily depend on natural resources, and in Chandel, the Chakpi River is a vital lifeline. Traditional knowledge plays a crucial role in the conservation of Chakpi and its various uses.

1. Documenting aquatic resources and their historical significance is essential for raising awareness among locals, helping them recognize the river's importance to the survival of their villages and cultural identity.
2. Fishermen and villagers contribute valuable tools, techniques, and ecosystem knowledge, which can deepen our understanding of sustainable harvesting practices for Chakpi's aquatic resources, both in the past and moving forward.
3. Folklore and folk stories linked to the river are integral to the indigenous identity. While some superstitions and beliefs may seem irrational, they often convey meaningful lessons and influence the community's behaviour toward the river, fostering a deep, organic connection between the people and their environment.

4. Data compiled from students and local citizens—such as photographs, anecdotes, incidents, and figures—can serve as powerful tools for raising awareness and promoting the conservation of Chakpi.
5. Traditional knowledge gathered from the locals emphasizes the uniqueness of their history and can inspire communities to safeguard Chakpi from external threats and exploitation.
6. Preserving traditional knowledge is vital for protecting the community's ownership over agriculture, livelihood, lifestyle, and habitat, all of which are intricately tied to Chakpi.
7. The rich and abundant history of Chakpi, punctuated by devastating floods, highlights the need to raise awareness about environmental changes, ecological imbalances caused by deforestation, sand mining, indiscriminate fishing, and the use of toxic methods.

The communities dependent on the river can protect and sustain Chakpi, ensuring its vital role in their cultural and ecological heritage is preserved for generations to come

Five key aspirations:

1. Enhance river management through the implementation of a citizen science approach, engaging local communities in data collection and monitoring efforts to improve understanding and management of the Chakpi River ecosystem.
2. Establish a community information centre dedicated to the conservation of the Chakpi River, with a primary focus on discussing and addressing the potential adverse effects of climate change and human-induced issues. The centre aims to preserve the ecological integrity and resilience of the Chakpi River through informed community engagement and collaborative efforts.
3. Foster a reconnection between people and the natural environment through revitalising traditional harvesting techniques, assisting in river regeneration initiatives, and promoting community engagement and management of the Chakpi River.
4. Provide better access to the river for recreational activities, enhancing the well-being and quality of life of local residents while promoting sustainable use of the river.
5. Improve the health and sustainability of aquatic resources within the Chakpi River, implementing measures to ensure responsible harvesting practices and the long-term viability of river resources for future generations.

In addition among the villages of Lambung, Monsang Pantha, Mantri Pantha, and Japhou, we have undertaken the task of mapping elevation gradients and rainfall data along the Chakpi River basin. This additional step is essential for gaining a comprehensive understanding of the geography and hydrology of the region, which significantly influences the dynamics of the river ecosystem.

Mapping elevation gradients involves capturing the variation in altitude along the course of the Chakpi River and its surrounding areas. This data allows us to visualize the topography of the region, identifying highlands, lowlands, valleys, and other geographic features. Rainfall data mapping involves analyzing historical rainfall patterns and distribution across the Chakpi River basin. Understanding rainfall patterns is essential for assessing hydrological processes such as runoff, infiltration, and groundwater recharge, which directly impact the flow and quality of water in the Chakpi River. Moreover, rainfall data helps in predicting potential risks such as droughts, floods, and erosion, enabling proactive management and adaptation strategies to mitigate adverse impacts on the river ecosystem and local communities.

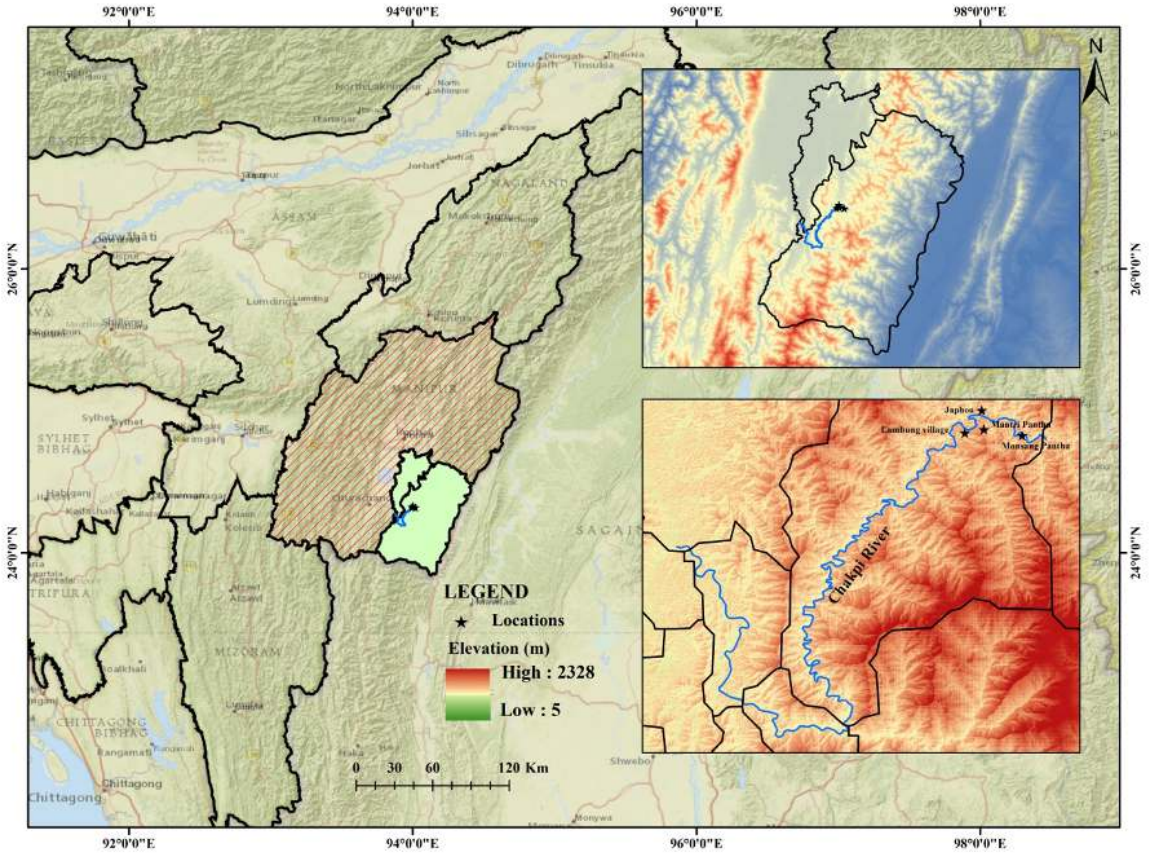


Figure 1: Manipur's elevation gradient and locations of the study sites along the river. The highest point reaches an elevation of 2328 meters, while the lowest point stands at just 5 meters above sea level.

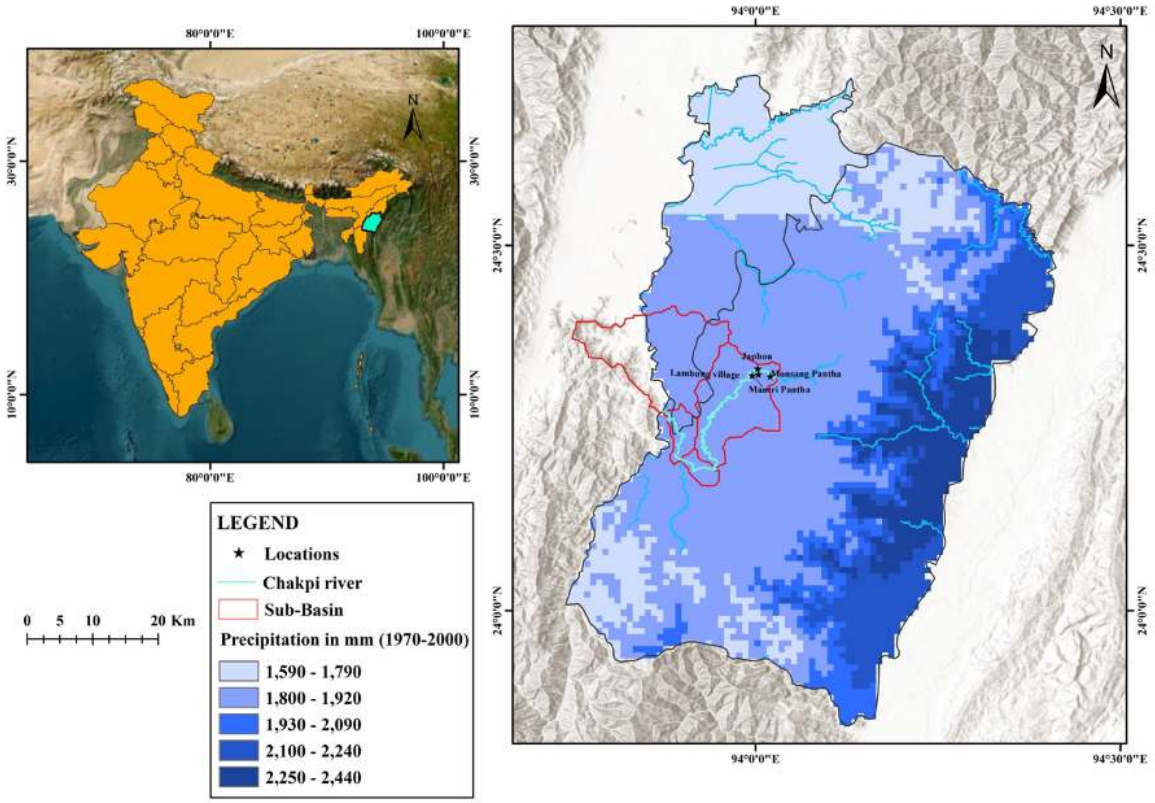


Figure 2: The Chakpi River basin received rainfall ranging from 1800 mm to 1920 mm per annum between 1870 and 2000. The highest and lowest recorded rainfall in Manipur fluctuates between 2440 mm and 1590 mm. The map illustrates the Chakpi River's course between the two river basins.

2. Community Response to the proposed Action Plan

A comprehensive proposal for the Community River Conservation and Sustainable Usage Program gained unanimous support during community interviews. Engagements were held with diverse occupational groups and active village clubs, revealing a strong consensus among residents to collaborate in protecting their river resources from exploitation, both internal and external. Respondents even expressed willingness to contribute to the proposed program through token amounts each year. The data reflects consistent support for the initiative across surveyed households, with respondents citing altruistic motives such as a sense of duty, collective responsibility, and commitment to rectifying environmental concerns.

The findings underscore the pressing need for a Community River Conservation and Sustainable Use Program, given the unanimous community backing. Recommendations include presenting the program to stakeholders for collaborative efforts and subsequent implementation.

A workshop organised initially involving the initial pilot villages, Lambung and Monsang Pantha, to chart the project's direction brought in several perspectives. During these interactions, several crucial decisions were made to ensure the sustainable use of the Chakpi River. One significant decision was the establishment of a conservation zone aimed at preventing the overexploitation of river resources, such as overfishing and excessive harvesting of other aquatic resources. Discussions highlighted sand mining as a major contributor to the declining health of the river and its exacerbation of flood impacts, prompting the need for further investigation before reaching conclusions. Collaboration with villagers and leaders was integral to gaining insights into their perspectives and concerns regarding the river's management and conservation.

With the inclusion of two additional villages, Mantri Pantha and Japhou, in the project scope, two additional stakeholder meetings were scheduled to address critical aspects of river management and community welfare. These meetings will focus further on exploring the feasibility of alternative livelihoods, proposing the prohibition of sand mining across all villages, implementing explicit fines for violations of sustainable use recommendations on the Chakpi River, and establishing a community centre dedicated to river monitoring and long-term management planning. Through collaborative discussions with stakeholders from all villages, a comprehensive plan that promotes environmental conservation, community well-being, and the sustainable utilization of the Chakpi River's resources will be developed.

Socio – economic surveys:

With over 100 respondents from Japhou, Lambung, Mantri Pantha, and Monsang Pantha, a robust dataset has been compiled from the socio-economic survey.

The next step involves meticulous analysis to extract meaningful insights into the dependencies, livelihoods, and perspectives of the local communities regarding the Chakpi River. Through comprehensive data analysis, the aim is to identify key patterns, trends, and correlations that will inform the development of targeted interventions and sustainable management strategies for the river ecosystem.

3. Establishment of Conservation Zone "ILU" in the Upstream of Chakpi River

The concept of Ilu, meaning deep waters in the local dialect, embodies a traditional understanding of the importance of certain areas within the river ecosystem. Through consultations with community leaders and local youth clubs, it has been recognized that preserving these deep-water zones is essential for maintaining the health and integrity of the Chakpi River. As such, the establishment of the Ilu - 100m Conservation Zone is rooted in both scientific principles and indigenous knowledge, reflecting a holistic approach to conservation.

The primary objective of the Ilu - 300m Conservation Zone is to safeguard the aquatic resources of the Chakpi River and promote the sustainable management of its ecosystem. Specifically, the zone aims to:

- Provide a sanctuary for aquatic flora and fauna, particularly during periods of environmental stress.
- Prevent the degradation of critical habitats and breeding grounds within the river.
- Raise awareness among local communities and visitors about the importance of conservation and responsible stewardship.
- Implement regulations to prohibit harmful activities such as fishing, use of destructive methods, garbage disposal, swimming, and domestic use within the designated zone.
- Facilitate long-term monitoring and research efforts to assess the effectiveness of conservation measures and inform adaptive management strategies.

The establishment of the Ilu – a 300m Conservation Zone will involve a multi-faceted approach, integrating scientific expertise, community engagement, and regulatory enforcement. Key steps in the implementation strategy include:

1. Formal declaration and demarcation of the conservation zone boundaries, based on scientific assessments and local knowledge.
2. Installation of informative boards and banners along the riverbank to communicate the significance of the zone and educate visitors about the associated regulations.
3. Collaboration with local authorities and enforcement agencies to enforce compliance with conservation guidelines and prevent unauthorized activities within the protected area.
4. Engagement with local communities and youth clubs to foster a sense of ownership and responsibility towards the conservation of the Chakpi River.
5. Continuous monitoring and evaluation of ecosystem health and biodiversity within the conservation zone, utilizing both traditional ecological knowledge and modern scientific methods.

The establishment of the Ilu - 300m Conservation Zone represents a milestone in the ongoing efforts to protect and sustainably manage the Chakpi River ecosystem. By combining traditional wisdom with contemporary conservation practices, this initiative serves as a model for integrated river management and community-based conservation. Through collective action and commitment, we can ensure that the Chakpi River remains a thriving hub of biodiversity and a source of livelihood for generations to come.

Extensive consultations with local villagers, including youth clubs, have been integral to the decision-making process, ensuring inclusive participation and community ownership of the conservation initiative.

Activities within the Ilu - 300m Conservation Zone will be strictly regulated to minimize human impact on the delicate ecosystem. Prohibited activities include fishing, the use of destructive methods, improper waste disposal, swimming, and domestic water usage. Signage and informational banners will be prominently displayed along the designated area, serving to raise awareness among local residents and visitors alike. These educational materials will outline the protected status of the zone and emphasize the importance of preserving its ecological integrity.

Additionally, stringent measures will be implemented to prevent the introduction of invasive alien species into the water bodies within the conservation zone. By safeguarding against such threats, we aim to maintain the natural balance and diversity of aquatic flora and fauna endemic to the Chakpi River.

The establishment of the Ilu - 300m Conservation Zone represents a pivotal milestone in our ongoing efforts to promote environmental conservation and sustainable development in Manipur. Through collective action and community engagement, we strive to ensure the long-term health and vitality of the Chakpi River for generations to come.

Boards and signages would be displayed near the “Ilu” to create awareness and indicate the conservation zone.

The Chakpi River
Conservation partnership project

giz

Putting sustainable conservation practices into action in the Monsang Pantha village

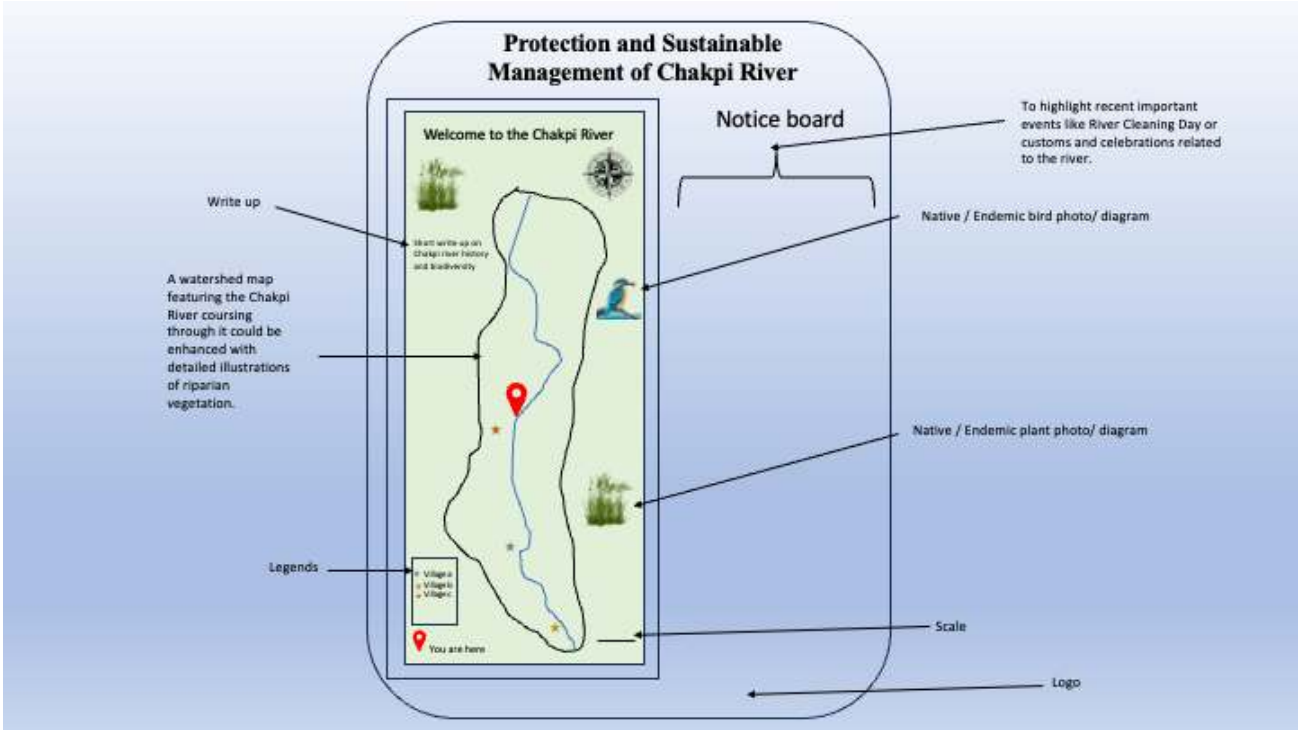
In our Monsang language, "Ilu" means the deep waters of the Chakpi River. We, the people of Chandel, and our Monsang Pantha community, kindly ask for your help to protect this special part of the river.

We cordially announce the establishment of a 100-meter aquatic resources conservation area along the Chakpi River. This will keep our aquatic resources safe and allow our community to prosper and benefit sustainably from the river. Your support is crucial to save the different kinds of native fishes, snails, and plants, and to keep our Chakpi River healthy.

Please join us in taking care of our river and the wonderful biodiversity in it. Your help means a lot for Ilu, our community, and the life around us. Thank you!

CONSERVATION AREA
संरक्षण क्षेत्र

PLEASE DO NOT ENTER
कृपया प्रवेश न करें



These boards serves as a visual representation of the Ilu Conservation Zone initiative, aimed at raising awareness about the project's objectives and the diverse groups of stakeholders involved. Positioned along the banks of the Chakpi River, this informative display highlights the collaborative efforts of local communities, village leaders, youth clubs, and conservation organizations in safeguarding the ecological integrity of the Ilu area.

An innovative approach to long-term visual monitoring of the Ilu Conservation Zone. A specially designed pole equipped with an alignment guide allows individuals to easily mount their smartphones and capture high-quality images of the Ilu area. Utilizing a QR code, individuals can seamlessly upload their photos to a designated website

or cloud storage, facilitating real-time data collection and analysis. Alternatively, individuals can opt to capture the email ID or URL displayed on the pole, enabling them to upload their photos at a later time. This citizen science approach to monitor, enables community members to actively contribute to the assessment of the Chakpi River's ecological cycle, providing valuable insights for conservation efforts and sustainable management practices. This also calls for a dedicated website / cloud storage for the Chakpi project.

4. Capacity Building Workshop:

Equipping citizens to monitor water quality of Chakpi river

To promote community engagement and empower local residents in the conservation and management of the Chakpi River, a long-term Water and River Quality Monitoring Initiative would be set up. This initiative aims to involve residents from Lambung, Monsang Pantha, Mantri Pantha, and Japhou villages in monitoring the water quality of the river through active participation and training.

1. **Identify Monitoring Parameters:** Determining the key parameters to be monitored, such as water quality indicators (pH, temperature, dissolved oxygen), ecological parameters (biodiversity, habitat quality) (if the data is available)

2. **Establish Monitoring Protocols:** Developing a standardized protocol for data collection, including sampling procedures, frequency of measurements, and equipment calibration methods, to ensure consistency and reliability of data over time. (River monitoring handbook)

3. **Select Monitoring Sites:** Identifying representative sites along the Chakpi River that capture variations in environmental conditions and human activities, ensuring comprehensive coverage of the Chakpi river ecosystem.

4. **Implement Data Collection:** Train community members and volunteers in data collection techniques and protocols, emphasizing accuracy, precision, and safety measures, to enable consistent and systematic monitoring efforts.

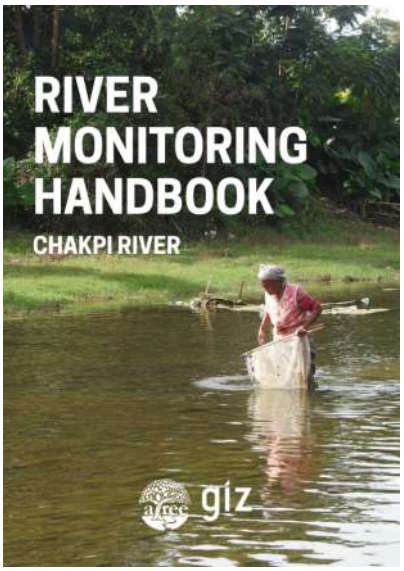
5. **Communicate Results:** Share monitoring results in the community information centre that can be viewed by stakeholders, including local communities, government agencies, and NGOs, through reports and public forums to foster transparency, awareness, and informed decision-making.

As part of the initiative, water quality instruments will be provided to locals and comprehensive training sessions on their usage will be conducted. These instruments will enable participants to collect essential water quality data at different time intervals, including parameters such as pH, temperature, electrical conductivity, and total dissolved solids. Additionally, through collaboration with local colleges or universities, advanced assessments such as biological oxygen demand, chemical oxygen demand, nutrient levels, microbial indicators, turbidity, and stream flow assessments can be conducted.

Conducting workshops will play a pivotal role in educating locals, including members of Wise Crabs volunteers and youth clubs, on the proper handling and operation of water quality instruments. Equipping community members with the necessary knowledge and tools would empower them to actively contribute to long-term monitoring initiatives, fostering a sense of ownership and responsibility towards the health of the Chakpi River.

In addition to the workshops, a comprehensive handbook on monitoring the river would be provided. This handbook will serve as a practical guide for volunteers participating in the monitoring initiative, providing valuable information on data collection procedures, equipment usage, and interpretation of results. By offering this resource, it is aimed to enhance the effectiveness and sustainability of the monitoring efforts, ensuring that volunteers feel confident and empowered to contribute meaningfully to the conservation of the Chakpi River.

This will ensure to underscore the potential impact of monitoring results and the significance of effective data interpretation. Going beyond data collection, proficient interpretation will enable us to identify trends, assess water quality, and make well-informed decisions regarding conservation strategies. Additionally, we are committed to fostering community engagement and empowerment, recognizing their pivotal role in cultivating ownership and responsibility among local residents. Through active participation in monitoring initiatives, community members will be empowered to contribute to more sustainable outcomes and strengthen the resilience of conservation efforts over the long term.



The data collected through our monitoring initiatives will be stored and displayed at the Community Information Centre for public access. This will allow community members to observe and comprehend the real-time impact and changes that the Chakpi River is undergoing.

5. Chakpi River Community Information Centre

Establishing the Chakpi River Information Centre in Monsang Pantha Village signifies a pivotal step towards community engagement and environmental awareness. Collaborating closely with village leaders and residents, we are planning to dedicate a space adjacent to the Monsang Pantha community hall, spanning approximately 300 to 400 square feet. This strategically located centre will serve as a focal point for raising awareness and fostering dialogue about the Chakpi River, catering to gatherings of up to 15 people.

At the heart of the Information Centre's mission is the dissemination of valuable knowledge about the Chakpi River ecosystem. Through informative boards and displays, visitors will gain insights into the river's ecological significance, ongoing conservation efforts, and the importance of sustainable resource management. Moreover, the centre will serve as a hub for hosting meetings, workshops, and collaborative sessions focused on river conservation and planning.

One of the key functions of the Information Centre is to facilitate the regular entry and display of long-term data collected by the community. This data, gathered through participatory monitoring initiatives, will be meticulously recorded and presented to visitors, providing a comprehensive overview of the river's health and trends over time. By showcasing the community's contributions to river monitoring and conservation, the centre will reinforce a sense of ownership and pride among local residents.

Additionally, the Information Centre will catalyze community-driven conservation efforts. Through interactive sessions and collaborative planning, residents will have the opportunity to actively contribute to conservation initiatives and develop innovative solutions to address pressing environmental challenges facing the Chakpi River.

Some of the boards to be displayed in the community information centre are provided below.

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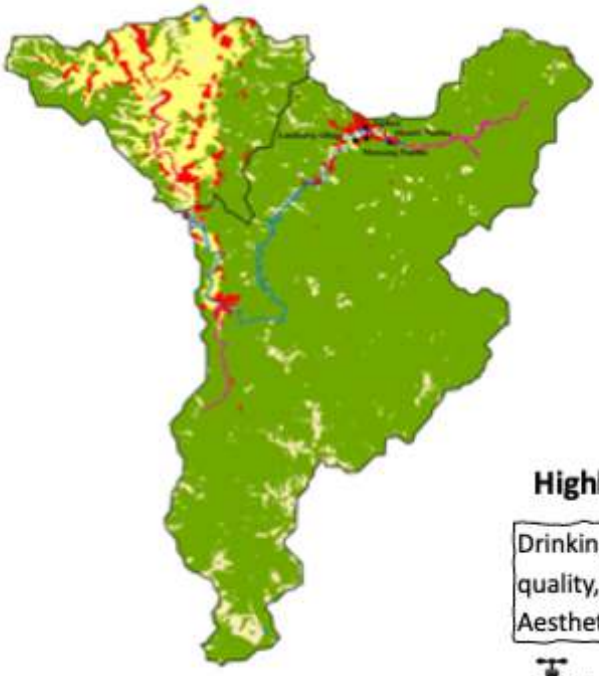
Chakpi

Elevation

1755 m

Catchment

660 km²



Main Threats

- Changing Rainfall Patterns
- Unsustainable Sand Mining Hurts Habitats
- Many people living Along the River
- Using Too Much Water
- Polluting Our River
- Harvesting Too Many Fish and Plants:

We have asked with more than 120 respondents from Lambung, Mosang Pantha, Japhou, and Mantri Pantha villages about their valued aspects of Chakpi. Here are the key insights from their valuable responses.

Highly valued ecosystem services for the people

Drinking water, Agricultural use, Medicinal uses, Maintaining water quality, Weather regulations, Fertility of the land, tourism, and the Aesthetic appeal of the Chakpi.

Ecosystem services

1. **Biodiversity Hotspot**:
   - Our Chakpi River is a special home for many unique plants and animals, some of which are rare and need protection. The people of Chandel know this and want to take care of these precious natural treasures.

2. **Water Supply and Purification**:
   - Chakpi River is like a major source of water supply for us. It gives us the water we need for drinking, farming, and our daily activities, helping us in our daily wellbeing.

3. **Cultural and Recreational Value**:
   - Our Chakpi River is not just a river; it's a special place for our traditions, celebrations, and fun activities. It makes us feel connected to our land and could even bring visitors (ecotourism) who might enjoy our culture and help our local businesses.

4. **Flood Regulation and Erosion Control**:
   - Chakpi River also protects us from floods and erosion, like a big shield. This helps keep our homes, farms, and important places safe during extreme weather events.

5. **Economic Contributions**:
   - Chakpi River does more than just give us water. It helps our farms grow, and provides us with various local food resources.

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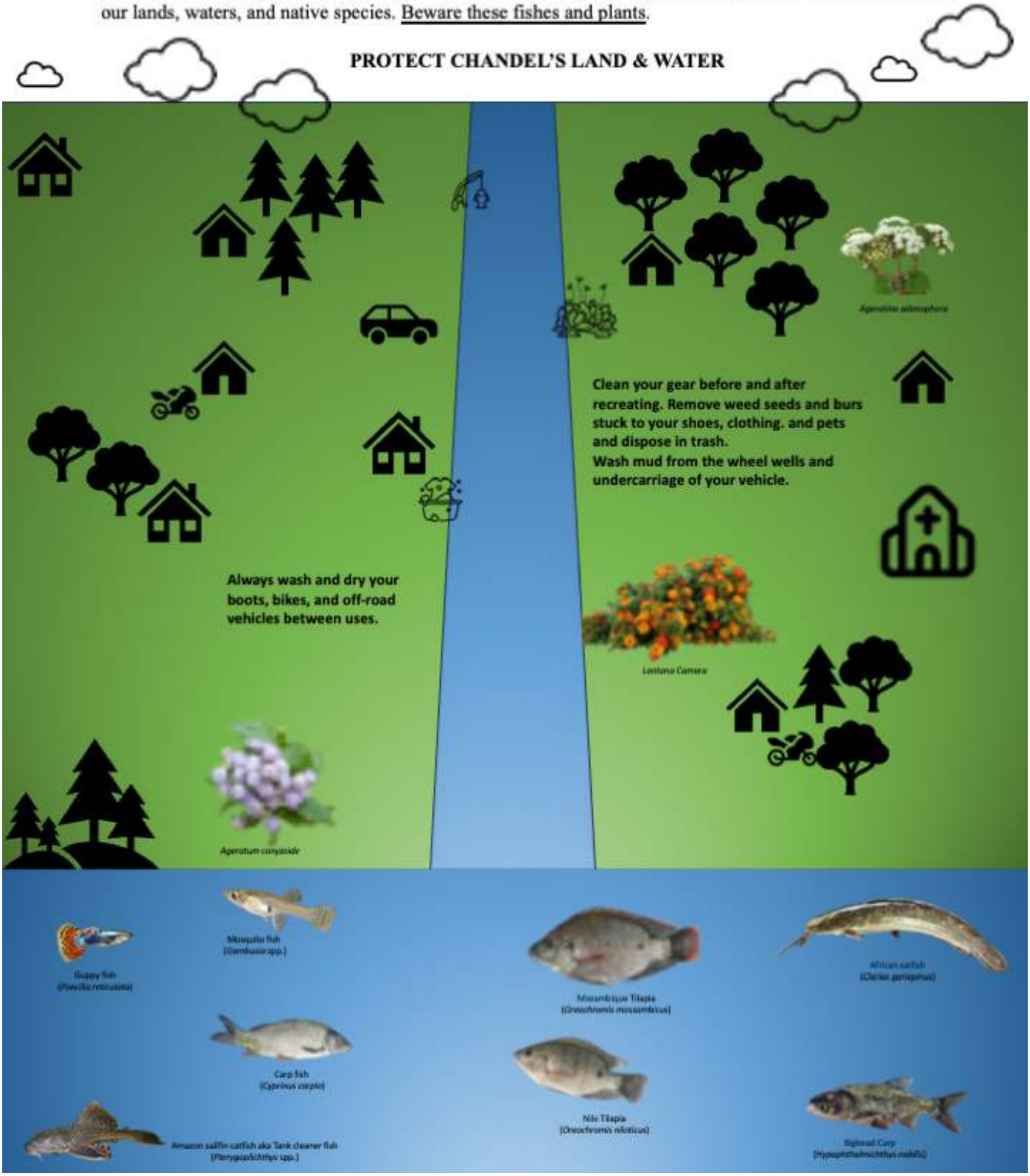
Chakpi

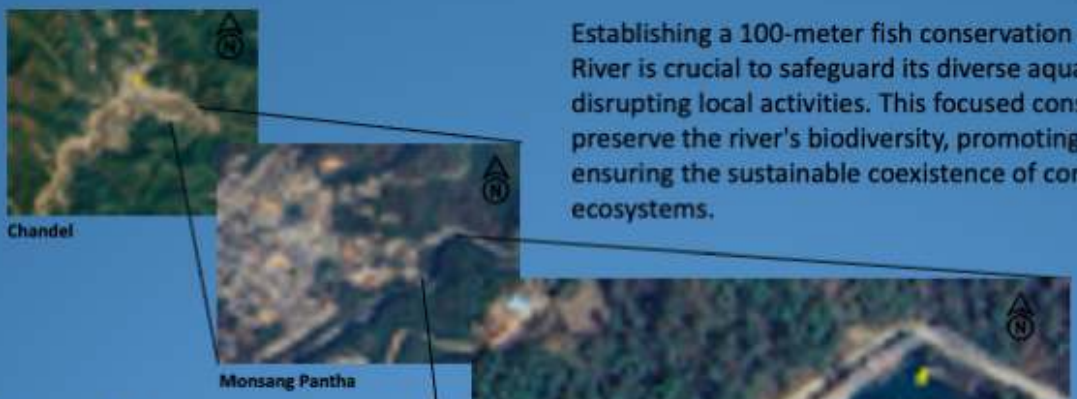
PEOPLE and their activities **MOVE INVASIVE SPECIES** from one place to another which can **HARM** our lands, waters, and native species. Beware these fishes and plants.



Chakpi

Conserving Chakpi River
The Legend of Ilu

The word "Ilu" signifies deep waters of the Chakpi river in the local Monsang Dialect.



Establishing a 100-meter fish conservation zone along the Chakpi River is crucial to safeguard its diverse aquatic life without disrupting local activities. This focused conservation effort aims to preserve the river's biodiversity, promoting ecological balance and ensuring the sustainable coexistence of communities and aquatic ecosystems.

Ilu : 100 m stretch in Chakpi river

Community Engagement:

- This project is with collaboration with Monsang pantha Village Youth Club and Wise Crabs

River health Monitoring:

- The Chakpi River will be seasonally monitored of water parameters: pH, temperature, dissolved oxygen, turbidity.
- Identification freshwater fish species as water quality indicators.

Conservation Impact:

- Protection of native and endemic species.
- Creation of a sustainable model for community-driven environmental stewardship.
- Cultivation of a sense of responsibility towards broader conservation efforts.

Dos

- Participate in Conservation Education Programs
- Support Community-Led Conservation Initiatives
- Conduct Regular Monitoring
- Practice Responsible Waste Disposal

Don'ts

- Avoid Destructive Fishing Practices
- Discourage Habitat Disturbance
- Minimize Human Disturbance
- Restrict Commercial Exploitation
- Prevent Introduction of Invasive Species

6. Alternative Livelihoods for Local Communities

In response to the pressing need for sustainable development and reduced reliance on the Chakpi River's resources, an Alternate Livelihood Programme would be implemented in Lambung, Monsang Pantha, Mantri Pantha, and Japhou villages. This programme aims to introduce alternative livelihood options that not only provide economic opportunities but also reduce pressure on the river ecosystem. Through diversification, the program aims to promote resilience and sustainability among local communities while fostering environmental conservation.

After discussing with various stakeholders of Chandel and the communities in Lambung, Monsang Pantha, Mantri Pantha, and Japhou, some of the alternative livelihood options that the communities are interested in will be explored based on the feasibility and expertise available.

Poultry Farming:

Poultry farming offers a promising avenue for generating income and reducing dependency on Chakpi River resources. By raising chickens for meat and eggs, villagers can tap into a profitable market while minimizing environmental impact. Key steps in implementing poultry farming include providing training on poultry management practices, ensuring access to quality feed and healthcare, and establishing marketing channels for selling poultry products. Additionally, adopting sustainable practices such as organic feed and free-range farming can enhance the environmental sustainability of poultry operations.

Duck Rearing:

Duck rearing is a traditional and sustainable farming practice widely adopted by communities among the villages of Lambung, Monsang Pantha, Mantri Pantha, and Japhou. It serves as a source of livelihood, nutrition, and ecological balance. Duck eggs and meat are rich sources of protein, essential vitamins, and minerals, contributing to improved food security and nutrition for families. Further, they require minimal maintenance as they are natural foragers, feeding on insects, weeds, and leftover grains in paddy fields. They are also hardy and can thrive in diverse environments, including riversides, and even small backyard setups. Their resistance to many common poultry diseases adds to their reliability as livestock. Duck rearing, with its economic, nutritional, and ecological benefits, is a valuable practice that supports sustainable development and community well-being. By encouraging this traditional livelihood, we hope to preserve cultural heritage and promote environmentally friendly farming methods.

Eco-Tourism Initiatives:

Harnessing the natural beauty and cultural heritage of the Chandel region, eco-tourism initiatives offer opportunities for sustainable livelihoods while promoting environmental conservation. Villagers can capitalize on ecotourism by offering guided tours, homestays, and cultural experiences to visitors interested in exploring the Chakpi River and its surrounding landscapes. However, to effectively implement eco-tourism initiatives, it is also crucial to develop infrastructure such as eco-lodges and interpretive trails, train local guides on hospitality and interpretation skills, and collaborate with tourism agencies and conservation organizations to promote responsible tourism practices.

Piggery: A Profitable and Sustainable Livelihood Practice

Piggery, or pig farming, is a profitable livestock practice. Pigs are highly adaptable animals that grow quickly, reproduce efficiently, and provide a significant source of income, nutrition, and manure for agricultural use. Due to their resilience and ability to thrive in various environments, piggery is often an integral part of traditional farming systems. Pork is a rich source of protein, vitamins, and minerals, contributing to food security for local households. Piggery provides affordable meat for local consumption, improving dietary diversity. Pigs have a remarkable ability to convert kitchen waste, agricultural by-products, and locally available feed into high-quality meat. This reduces feed costs and promotes waste recycling, making pig farming economically sustainable. Further pig manure is rich in nutrients and serves as an organic fertiliser, enhancing soil fertility and agricultural productivity.

Handicraft Production:

Handicraft production represents a time-honored tradition that holds significant potential for economic empowerment and cultural preservation among communities along the Chakpi River. Through the revival of traditional skills and craftsmanship, local artisans can create a diverse range of handmade products, such as traditional Phanek (wraparound skirt) and Innaphi. These artisanal creations not only serve as tangible expressions of cultural identity but also contribute to local economies through trade and tourism. By promoting handicraft production as an alternative livelihood option, communities can leverage their rich cultural heritage to generate income, preserve traditional knowledge, and foster pride in local craftsmanship. Moreover, supporting the growth of the handicraft sector can enhance community resilience, create employment opportunities, and promote sustainable development in the region.

The implementation of alternative livelihood options holds tremendous potential for promoting sustainability and resilience among the communities residing along the Chakpi River. Through diversification, villagers can reduce their dependency on river resources while improving their socio-economic well-being. However, successful implementation requires concerted efforts in capacity building, infrastructure development, and market access. By embracing these alternative livelihood options, local communities can forge a path towards sustainable development while safeguarding the precious resources of the Chakpi River for future generations.

7. Long term Strategies and Action Plan of Conservation of Chakpi River

To sustain and expand the gains of the completed project ensuring the long-term health of aquatic ecosystems and the livelihoods.

A. Key Principles

- Community Ownership: Foster a sense of responsibility among local stakeholders.
- Participatory Governance: Promote decision-making processes inclusive of all community members, including marginalized groups.
- Integrated Approach: Address ecological, social, and economic dimensions of river conservation.
- Sustainability: Ensure financial and operational viability beyond external funding.

B. Strategic components

1. Institutional Strengthening

- Strengthen the Chakpi River Protection Force (CRPFs) or any other similar committee at the village.
- Updates and Develop bylaws for river conservation in alignment with traditional practices.
  - **Timeline:** Initial 2 years and ongoing.
  - **Responsibility:** Village authorities, CRPF members, Monitoring team and community representatives.

2. Capacity Building

- Train more community members on river health monitoring techniques.
- Share and discuss among youth and task force members on the Chakpi River Monitoring Manual.
- Timeline: Years 1–3 with periodic refreshers.
- Responsibility: Chakpi River Conservation Forces, Monitoring teams, local youth with scientific backgrounds, and ATREE.

3. Monitoring and Evaluation System

- Maintenance of tools for data collection (e.g., test kits).
- Timely updates the data-entry files and display board of Community Information Centre.
- Conduct annual participatory river health audits.

Timeline: Start in Year 1; integrate fully by Year 3.

Responsibility: CRPF and monitoring team with technical support from MU or ATREE or other relevant scientific organization.

4. Sustainable Financing

- Create a Chakpi River Conservation Fund through contributions from local communities, village natural resources revenues etc.
- Encourage partnerships with private sector entities.
- Develop & continue income-generating activities linked to conservation.

Timeline: Initiated in Year 1 and ongoing.

Responsibility: Village authorities, Youth clubs.

C. Main Action area:

- Habitat restoration (e.g., restriction on commercial stone removal from river, conserve native riparian vegetation).
- Sustainable fisheries management (e.g., fishing bans during breeding seasons (April), No fishing in the ILUs).
- Pollution control (e.g., Regular monitoring of River, Regulation on vehicle washing, clothes washing at the middle of the river, reducing agricultural runoff, waste management).
- Capacity building (e.g., more training, co-learning on conservation practices, monitoring and alternative livelihoods).

Action points & Activities:

Activity	Responsibility	Timeline	Monitoring Indicators
Regulation	Village Authority	6 Monthly	Update or revise rules/regulations/order based on the new challenges
River clean-up drives	Local youth groups	Every 3 Month	Volume of waste removed (photographs, no. of bags
River monitoring	CRPF, Youth Clubs	Monthly	Data on Community Information centre
Habitat restoration	CRPF, Youth Clubs	Monthly	Area restored
			Participation numbers

Additional Action Points on Chakpi River Conservation Action Plan

1. **Community Mobilization and Awareness:**
    - Conduct workshops, and public meetings about the importance of the Chakpi River's biodiversity and its sustainable use.
    - Engage schools and colleges for river-based learning activities.
2. **Capacity Building:**
    - Involved and Train additional members of the local community members, especially women and youth, in monitoring and assessment of river health.
    - Develop and co-learning each other skill-building programs for alternative income generation (e.g., piggery and weaving /handicrafts).
3. **Strengthen Community Institutions:**
    - Strengthen or revitalize Chakpi river Conservation Force and monitoring team.
    - Encourage active participation of women and men fishers, ensuring representation of women and marginalized communities.
4. **Biodiversity and Habitat Conservation:**
    - Planting of native vegetation and fruit trees along riverbanks with community participation with the support of forest dept. and divisional forest office.
    - Protect Critical Habitats or more spawning grounds or ILU by identifying and demarcate fish breeding and feeding zones.
    - Implement seasonal (April) fishing bans and no-take zones with village authorities and youth clubs in governance enforcement.
5. **Waste Management:**
    - Organize regular river cleanup drives with youth clubs and schools with the support of village authorities' governance bodies.
    - Establish waste collection and recycling points near villages.
6. **Integrate Traditional Knowledge into practices:**
    - Document and incorporate more traditional river management practices into conservation action.
    - Regularly sought and engage elders and traditional leaders in advisory roles.

8. Conclusion

In conclusion, the action plan outlined for the conservation and sustainable management of the Chakpi River in Manipur reflects a collaborative and holistic approach to addressing the environmental challenges facing the region. Through extensive community engagement, capacity building initiatives, and the implementation of alternative livelihood options, we aim to empower local residents to become owners of their natural resources while promoting resilience and sustainability.

By establishing the Ilu - 100m Conservation Zone, will demonstrate the commitment to preserving the ecological integrity of the Chakpi River and safeguarding its rich biodiversity for future generations. This initiative, coupled with stringent regulations and community awareness efforts, serves as a model for responsible environmental stewardship.

Furthermore, the establishment of the Chakpi River Information Centre and the implementation of the Water and River Quality Monitoring Initiative underscore the dedication to fostering community involvement and promoting citizen science in environmental conservation. Through these initiatives, a foundation of knowledge and awareness that empowers local residents to actively participate in monitoring and decision-making processes related to river management will be established.

Additionally, the introduction of alternative livelihood options such as beekeeping, poultry farming, integrated agriculture, eco-tourism initiatives, handicraft production, and agroforestry represents a transformative step towards reducing dependency on the Chakpi River's resources and promoting economic diversification among local communities. By providing training, resources, and support, the program aim to equip villagers with the

tools and skills necessary to pursue sustainable livelihoods while preserving cultural heritage and traditional knowledge.

In conclusion, the success of this action plan hinges on continued collaboration, innovation, and commitment from all stakeholders involved. By working together to implement these strategies, a long-term health and vitality of the Chakpi River ecosystem can be ensured while promoting the well-being and prosperity of the communities that depend on it.

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