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ASSESSMENT OF ECO-TOURISM POTENTIALS IN SURGUJA DIVISION

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ABSTRACT:

This study assesses the eco-tourism potential of the Surguja Division in Chhattisgarh, India, a region renowned for its rich biodiversity, dense forests, tribal culture, and unique topography. Despite possessing abundant natural assets, including the Mainpat plateau, Ramgarh hills, pristine waterfalls, and wildlife sanctuaries, the region's eco-tourism sector remains largely underdeveloped. This research evaluates specific geographical, ecological, and cultural sites to determine their viability for sustainable tourism development. Using a mixed-methods approach, the study integrates field surveys, geospatial analysis (GIS), and stakeholder consultations, including local tribal communities, tourists, and government officials. This study investigates the visitor count in Surguja division, focusing on significant tourism attractions, seasonal variations, and the impact of infrastructure and accessibility. Surguja division is a popular tourist destination due to its magnificent beauty, rich culture, and historical significance. The analysis determines the busiest and slowest travel seasons and considers weather, local activities, connections, and other factors that influence how many people visit. The survey discovered that the area's stunning beauty, particularly the Mainpat hill station and the Surguja plateau's lush evergreen cover, attracts tourists from both India and other nations. It is also noticed that the flow of tourists is fully seasonal, with the greatest visitors coming between September and March and the least visitors coming during the summer and monsoon season. The findings reveal that while Surguja possesses high intrinsic potential for trekking, wildlife viewing, and cultural tourism, severe bottlenecks exist. These include inadequate transport infrastructure, limited accommodation, and a lack of trained local guides.

KEYWORDS: Eco-tourism, Forest, Tourist, Tribal Communities, National Parks, Sanctuaries,

1. INTRODUCTION:

Ecotourism is the practice of travelling to relatively untouched natural places to learn about, appreciate, and enjoy nature and its wild plants and animals. Ecotourism is therefore being promoted as a tool for biodiversity conservation and rural development (Aaronson, 2000). The term **"eco-tourism"** can be described as "responsible travel to natural regions that improves the well-being of local people." Natural phenomena and integral components of the environment, forests, and wildlife are both. People's involvement in environmental conservation must be non-negotiable, given the complex interactions between humans and nature. Along with others who may live elsewhere, participants in this project include those who live on the edges of forests. Eco-tourism can grow in both designated protected areas for wildlife protection and undesignated protected areas, such as forests, holy groves, wetlands, and rivers. Ecotourism has great potential to grow in the study region, benefiting the local economy. There is employment potential in ecotourism. Each year, it generates a significant number of jobs, both directly and indirectly (Boo, 1990). The study of Surguja District, Chhattisgarh, provides valuable insights into this framework. The area's rich cultural history, attractive beauty, and historical significance have made it a popular tourist destination. Between 2014 and 2021, the number of tourists visiting Surguja increased by 127.71%, indicating that the region has recovered successfully from the decline in visitors caused by the COVID-19 pandemic. Even more astounding is the district's 211.04% rise between 2021 and 2023. This indicates that eco-cultural tourism is still in high demand.

The purpose of this research is to investigate the seasonal and geographical trends in visitor flow in the Surguja division. The goal is to highlight factors that contribute to tourism recovery, including infrastructure, accessibility, and weather. The study's novelty lies in its regional focus, which provides insights for other countries facing similar difficulties. Learning about these patterns is the first step in establishing plans that encourage sustainable growth while conserving cultural and environmental values.

1.1 OBJECTIVE

The objective of this study is to determine peak and off-peak times as well as transportation accessibility.

1.2 METHODOLOGY

Both quantitative and qualitative research methods are used in this study. Local stakeholder interviews and participant observation are used to gather primary data. In addition to monthly and annual satellite datasets obtained from Google Earth Engine, secondary data is collected from government publications, academic publications, and pertinent tourist and sustainable development literature for the years 2014 through 2023. By concentrating on the relationships between natural resources, cultural legacy, and tourism activities, the analysis seeks to fully comprehend the Sarguja division's tourism potential.

1.3 The Factors Affecting the Development of Eco-Tourism Potential in the Surguja Division: i) Biodiversity and Natural Attractions, ii) Conservation and Sustainability, iii) Community Involvement and Local Empowerment, and positive IV) Infrastructure and Accessibility, v) Interpretation and Education, vi) Collaboration and Partnerships vi) Marketing and Promotion) Safety and Visitor Experience

2. ECO- TOURISM PLACES IN THE SURGUJA DIVISION

The Surguja division has been blessed with the natural beauty and cultural history that nature has supplied. The hill ranges and continuously flowing rivers, gorgeous, impressive, imposing structures, old caves, beautiful waterfalls, and rock paintings on the cave rocks. Tourists find the local nature, culture, wildlife, and handicrafts like paradise. Tourists come here mostly for the lush trees, the main draw. Tourists are drawn to the autumnal forests for their natural beauty, profusion of vegetation, and diversity of animals. The Surguja division is a perfect ecotourism destination with enormous potential to promote ecotourism, thanks to its distinctive blend of rich cultural heritage and ecological diversity. The Government is actively collaborating with local officials in the study area to realise the region's ecotourism potential and make it one of the most important ecotourism destinations. Surguja division has many natural scenic spots and important temples that attract tourists. Surguja division is situated in the southeastern part of the Vindhyachal and Baghelkhand region. The major rivers here are Kanhar, Moran, Rihand, and Mahan, which flow in the Mahanadi drainage system. The surface texture here is divided into the following 3 parts: Pat region - These are the high terrain of northern Surguja, where the average height is about 600 meters. Here, the higher part is called Pat, and the main ones are Mainpat, Jarang Pat, Jonka Pat, Jamira Pat, and Lahsun Pat. Highlands – Most of Koriya, situated in the North West Surguja region, is hilly. Here, 3 main Steps appear: Shringar in the east, the high plateau region of the second Sonhat, and the third, higher than Sonhat. Intermediate low land- This is the structure of the

middle part of Surguja. It is actually a low-lying valley comprising the Hasdo Rihand and Kanhar basins. The following tourist places come under this.

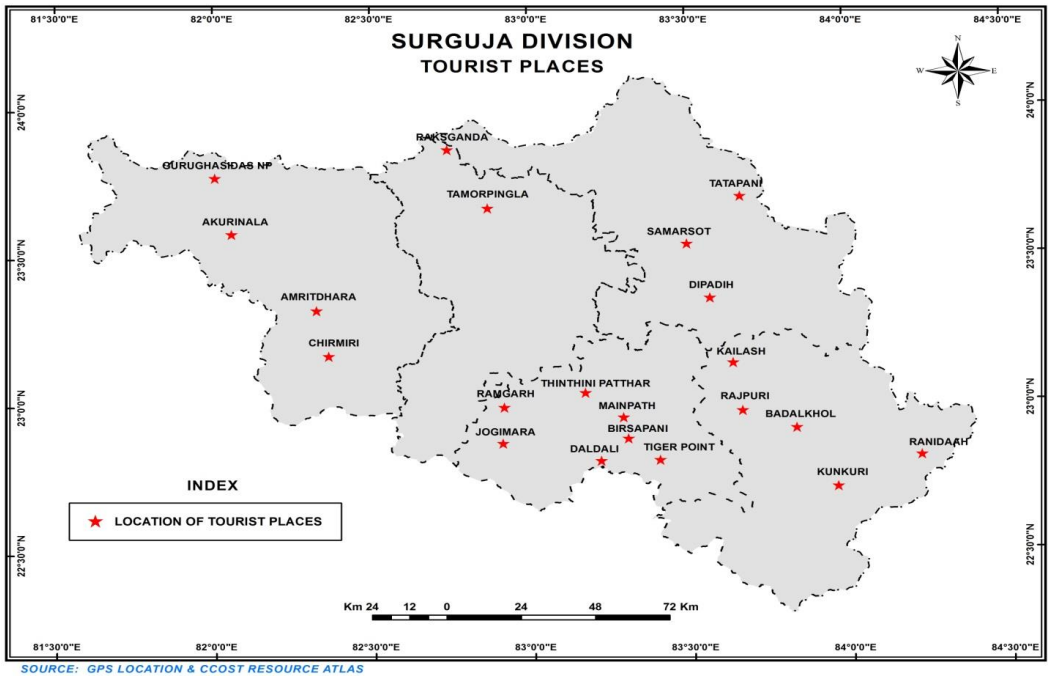

Fig.No.1.

Ramgarh Hill

Ramgarh is a historically and culturally significant hill situated approximately fifty kilometres from Ambikapur. Known for its hat-shaped profile, this historic site is home to the world's oldest natural theatre (Sita Bengra) and the ancient Jogimara caverns, which are closely associated with the poet Kalidas and Lord Rama.

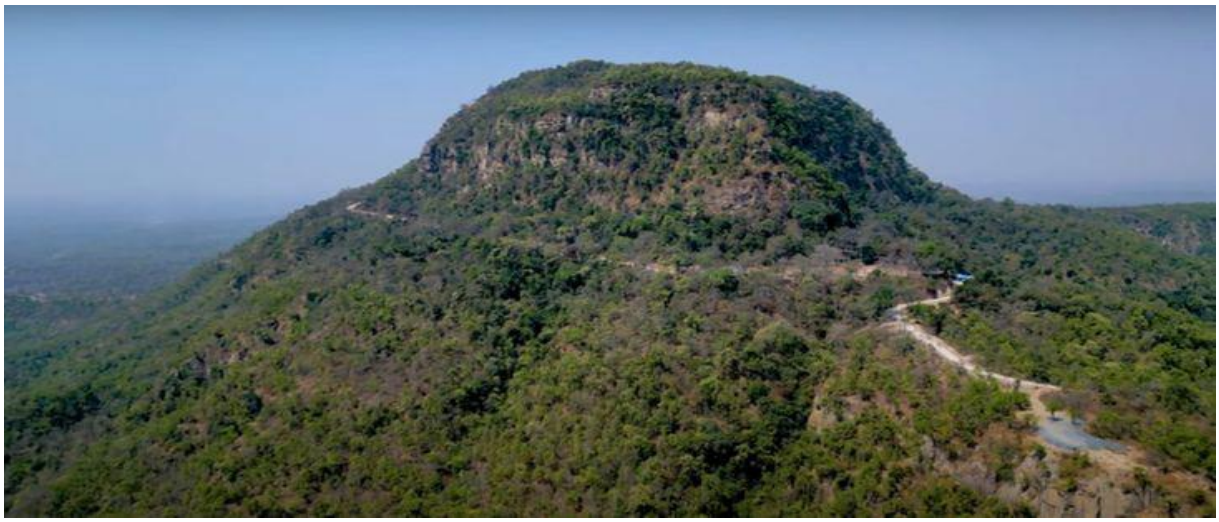

Fig No. 2 Ramgarh hill.

It is believed that Lord Rama resided here with Sita and Lakshmana during their 14 years of Vanavasa, hence the hill has been named Ramgarh, Sita Bhengra, and Lakshman Bengra. The description of the Sita-Bengra cave comes from Kalidasa's Ramayana. The description of the Sita-Bhengra cave comes from Kalidasa's Ramayana. It is believed that Mahakavi Kalidas left Ujjayani after getting angry with Raja Moj and composed his epic Meghdoot here. At the lower end of the northern part of Ramgarh, there is a huge tunnel, 49 meters long and 17 meters high, called Hathpole. Its height is such that an elephant can easily pass through it. There is a pool inside it called Sita Kund. This cave is 14 meters long, 4.2 meters wide, and 4.2 meters high. The oldest remains on this hill are a cave called Sita Bongra, which is 2 meters high. Its texture is like the Natya Mandap described by the famous Bharat Muni, the pioneer of theatrical art. This theatre would have been mainly used for drama and dance ceremonies. Human footprints are engraved on the right side of the cave, usually made of clay, cow dung, stone sawdust, etc., in the pavilion soil.

Jogimara

The Ramgarh Hills in the Sarguja district of Chhattisgarh, India, contain the 2,300-year-old natural rock-cut Jogimara Caves. They are famous for housing fragments of some of India's oldest frescoes and possibly the first written love letter in stone, both of which date to the third century BCE. It is 15 feet in width and 30 feet long. It is also known as the Varun Temple. Sutanuka, a Devadasi, was completely devoted to Varun Dev. It was constructed for the remaining dancers who studied at the Sitabongra dance academy.

Fig No.3 Jogimara cave.

Mainpat

In the Surguja district of Chhattisgarh, India, there is a lovely hill station called Mainpat. It is frequently referred to as the "Shimla of Chhattisgarh" or "Mini Tibet" due to its elevation of 1,085 meters (3,560 feet). It has beautiful waterfalls and unusual geological features, and is well known for its cool climate, Tibetan culture, and verdant surroundings. The region is known for its pleasant climate, beautiful landscapes, and waterfalls. Tourists can enjoy the scenic beauty, visit Buddhist monasteries, and indulge in adventure activities like paragliding.

Fig. No. 4 Thakpo Shedupling Monastery.

The Mainpat has a broad plateau with an average elevation of 1099 meters above sea level, covering 226 kilometres, or 61 per cent of the territory, with forest land. Tibetan refugees were relocated to Mainpat by the Indian government in 1962–1963. The Mainpat population follows an ancient Buddhist tradition. In Mainpat, Buddhists are the dominant cultural group. Mainpat is situated on the Katni-Ambikapur Road, about 50 kilometres from Ambikapur, and Road access to Mainpat is available via Ambikapur Darima (15 km).

Thin-Thin Pathar

Situated in Village Chhindkalo, near Darima Airport in Surguja District, Chhattisgarh, India, Thinthini Patthar is a rare geological site and a prehistoric megalithic menhir. When struck with a smaller stone, this enormous cylindrical rock, which weighs more than 200 quintals, produces loud, distinctive, metallic, and melodic echoing sounds. It is a substantial rock weighing 200 kg and is cylindrical in shape. It begins to resonate and make a metallic sound when played with a heavy object. This stone produces several different sounds.

Fig.No.5 Thinthin Patthar. (Stone)

Tiger Point

Tiger Point Waterfall is a breathtaking 60-meter (200-foot) waterfall located in Mainpat. The falls, which are surrounded by steep gorges and dense forests, are a popular tourist destination in the area because of their cool, foggy climate and abundant foliage, particularly during the monsoon season. It is divided in the centre by the Mahadev River. This river has transformed into a beautiful waterfall after plummeting from a height of 60 meters. Tiger Point got its name because the animal once roamed here. On both sides of the river, there are many medicinal trees.

Fig. No. 6-tiger fall.

The name of the river that runs through this forest is Fish Point. The waters of this pure river were once home to healthy fish. Later on, this river creates Fish Point, a waterfall. On the western side of Parpatia Mainpat, there are lovely protected forests from which one can see the inaccessible high hill of Bandarkot, the Rakmada tribes' natural cave, their religious icon,

the Shyam Ghunghutta dam, and the hill of Ramgarh. Mehta Point is 8 kilometres from Mainpat. In the protected forest, there is a lake that later transforms into a drain and plunges 80 meters to form the waterfall known as Dev Pravah.

Amritdhara

Amrit Dhara Waterfall is a beautiful waterfall in Surguja Division, near Jashpur Nagar. The waterfall is surrounded by dense vegetation and provides a tranquil, beautiful setting. It is a popular destination for picnics and for nature lovers seeking a refreshing experience. The Hasdo River has a stunning waterfall nearby. It is located on the Manendragarh-Baikunthpur route. It is about 27-30 meters tall and 3-5 meters wide. On Shivratri, a fair is held here every year.

Fig. No. 7 Amritdhara.

It is situated in the Manendragarh tehsil, in Barwaspur. The water of the waterfall has health benefits.

Akurinala

Akuri Nala is a waterfall in the Koriya district of Chhattisgarh, India, close to Bansipur village. A favourite spot for picnics and nature enthusiasts, it is locally known as the "natural air conditioner" for the steady, soothing breeze that blows through the thick, rocky forest. Tourists are welcome to go about here without restriction, despite the little waterfall that spans 100 meters on both sides. During the summer, this location is very cool.

Fig. No. 8 Akurinala.

Chirmiri

Chirimiri is a hill station town in Koriya district (Manendragarh-Chirimiri-Bharatpur) and is famous for its coal-rich area. It is situated at an altitude of 580 meters above mean sea level. The Lord Jagannath temple of the city is a replica of the Puri Jagannath temple. Sati Temple in Baigapara,

Fig. No. 9 chirimiri.

Rakshganda

The Rakasganda Fall is a popular tourist destination in Chhattisgarh, India's Surajpur district. Located on the Rihand River, this fall is approximately 150.0 km (93.2 miles) from Ambikapur and 60.0 km (37.3 miles) from Wadraf Nagar, a tiny city and tehsil [1] surrounded by thick forest. The final village before Rakasganda, Balangi, can be reached by various buses from Ambikapur and Wadraf Nagar. To get to Rakasganda, four-wheelers or two-wheelers can be rented from Balangi. April through June are the finest months to visit Rakasganda.

Fig. No. 10 Rakshganda.

Deepadih

This Deepadih is situated in the Balrampur district, Samri tehsil, at a distance of 42 from Chalgali village of Samri. It is located near the holy confluence of the Kanhar and Galfulla rivers, around 70–75 kilometres from Ambikapur, the Surguja district headquarters. The meaning of Deepadih is 'God's place'. According to some historians, Dipadih was ruled by a Dravidian ruler named Samani Singh from the 6th to the 12th centuries. In Deepadih, 6 major and 74 minor temples have been known mainly from mining work in Samat Sarna Oraon Fort, Rani Pokhara, Chamunda Temple, Panchayatan Temple, and Borjatila. Here is an artistic portrait of Mahisha Mardini. The image of Shiva's bull faces east and is situated 50 meters from the temple. A broken pillar in the middle of this artwork symbolises ancient Brahmakala. Huge statues of Kartikeya, Virat Roop Vishnu, Bhairav, Ganesha, Mahishasur Mardini, Durga, Kalyan Sundar, Shiv Gauri, Kuber, Prithvi Uma Maheshwar, and Brahma have been received from this temple. There are 108 Shivlings made in one Shivling. A special idol of Brahma has been received from here; the goddess idol has also been prominently designed in the craft of Dipadih. Many idols of Mahishasur Mardini, Chamunda, Yogini Durga, Gauri, Skandamata, and Saint Matrika are of high quality. Mahishasura Mardini is fighting as Durga, holding the demon's horns. Along with Chamunda, his Gana Shringal, Bhoot Pishach, and Betal are depicted drinking blood. Alongside spiritual thought, the artisans have subtly displayed secularity.

Fig. No. 11 Deepadih.

Tatapani

The hot water keeps coming out continuously; by taking a bath there, an individual with the skin condition benefits from improved health. When we tie rice in a piece of fabric and leave it at the water's source, it cooks instantly because the water is so hot. According to popular belief, there is as much flow in the direction the water is flowing as in the forward direction. Tatapani is located in the Balrampur district, 95 kilometres from Surguja. It is distantly situated. The commissioner was seen coming here and taking a hot bath. His skin problem fully vanished after a bath. In addition to an old Shiva temple and a massive 60-foot statue of Lord Shiva, the place is well-known for its natural hot springs, where the water is hot enough to boil rice and eggs.

Fig. No. 12 Tatapani Kund.

Fig. No. 13 Tatpani hot spring.

Kailash cave

The Kailash Cave (Kailash Gufa) near Gaibuda village in Jashpur, Chhattisgarh, is a breathtaking, rock-cut mountain temple surrounded by lush trees and cool streams. Famous for its natural Shivlinga structure, holy freshwater springs, and tranquil ambience, it offers a peaceful getaway for both nature enthusiasts and pilgrims. The Sant Gahira guru Tapobhumi sthal and Shiv temple are located here.

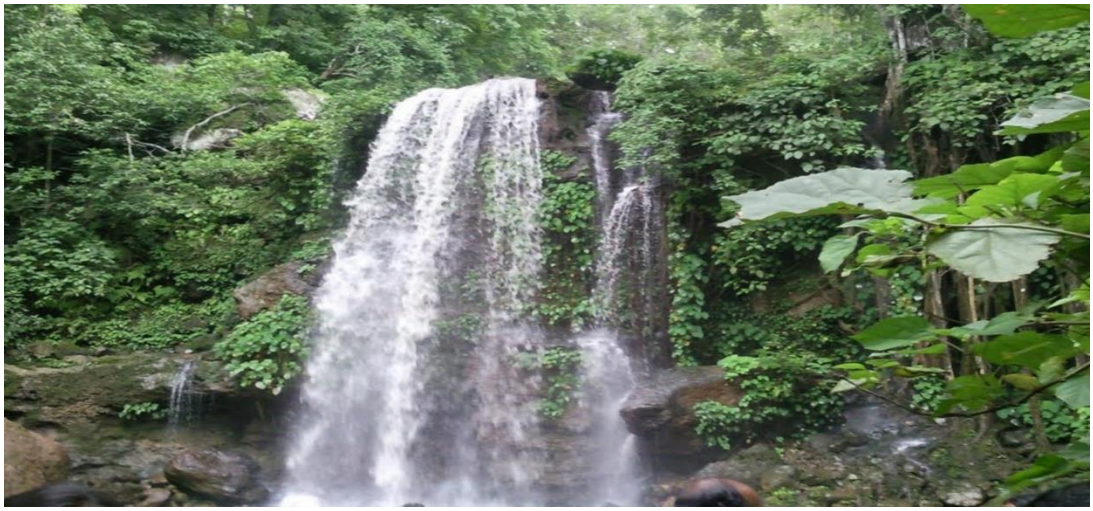

Fig. No. 14 Kailash cave.

Rajpuri Waterfalls

Rajpuri Waterfall is a picturesque, perennial waterfall near Bagicha village in Chhattisgarh's Jashpur district. It is located around 90 kilometres from the Jashpur district headquarters and 60 kilometres from Ambikapur, and it drops approximately 100 feet into a quiet natural pool.

It also has excellent road connectivity. Because of this, many people come here for picnics and leave content. A few kilometres away from Bagicha. Here, water always flows.

Fig. No. 15 Rajpuri Waterfall.

Ranidah Waterfall

Ranidah Waterfall, located in the isolated and scenic Jashpur district of Chhattisgarh, is a remarkable natural attraction that captivates visitors with its majestic grandeur and peaceful surroundings. The waterfall is famous for its spectacular cascade, which flows smoothly over rocky cliffs surrounded by deep forests. Ranidah Waterfall's calm environment and pristine natural beauty make it an ideal destination for nature lovers, adventurers, and those wishing to escape to the woods. Surrounded by lush green forests and rocky terrains, it offers a picturesque setting for nature lovers.

Fig. No. 15 Ranidah Waterfall.

Visitors can enjoy the stunning views, take a refreshing dip in the natural pools, and spend quality time in the lap of nature. The region also offers opportunities to explore tribal culture,

visit ancient temples, and experience the local way of life. It is important to check the current accessibility and regulations of these places before planning a visit to ensure a smooth and enjoyable experience. The highest tourist flow is shown in the Surguja district at 39.43%, and the lowest in the Koriya district at 5.8%, due to a lack of road connectivity and dense forest cover.

4.3 NATIONAL PARKS AND SANCTUARIES IN THE STUDY AREA

There are 1 national park and 3 wildlife sanctuaries in the study area, namely Gurughasi Das National Park, Tamor Pingla Sanctuary, Semarsot Sanctuary, and Badalkhol Sanctuary.

Guru Ghasidas National Park

The Guru Ghasidas National Park is a reserve forest covering an area of 1440.71 sq kilometres. It was formerly part of Sanjay National Park in Madhya Pradesh and is now located in the Koriya District of Chhattisgarh. However, after the formation of Chhattisgarh, 60% of the forest in the Koriya district was renamed Guru Ghasidas National Park, after the Satnami reformist hero of the place, Guru Ghasidas. Since becoming a National Park in 1981, the sanctuary has been renowned for its abundant and diverse flora and fauna. Sanjay National Park is a 2,303 sq km area well drained by a multitude of rivers, rivulets, and other perennial water sources, providing wildlife and birds with sufficient water, and is home to a diverse array of animals and birds, including several rare and endangered species.

Fig. No. 16 Guru Ghasidas National Park.

The terrain of the Guru Ghasidas National Park includes a mixture of several types of greenery. Most of the forest is mixed deciduous, with a few pockets of mixed subtropical vegetation. The main sources of water for the animals are two significant rivers on the

property, as well as the variety of streams that crisscross the landscape. These rivers include the Bijaur Nala in the north, which is also full during the summer, and the Banas River in the west of Guru Ghasidas National Park. The national park offers safaris that highlight its most outstanding features, including lush foliage and a peaceful ambience. There are a variety of old, new, and unusual plant species flourishing throughout the national park. Different varieties of teak, sal, and bamboo trees make up the majority of the forest vegetation. Along with these, the forest may also contain smaller plants and shrubs, including Gurjan, Palas, Tendu, and Mahua. The best time to visit is between November and May to witness the park's lush foliage and migratory bird population. Situated in a tropical region 327–736 meters above sea level, Guru Ghasidas National Park offers a biodiverse habitat for tigers, leopards, and various deer species, with the best visitation window spanning November to May. The park is characterised by dense Sal, Gurajan, and bamboo forests, numerous rivers, and a wide array of wildlife, including rich birdlife such as kingfishers and vultures, thriving in a climate that ranges from hot summers to chilly winters.

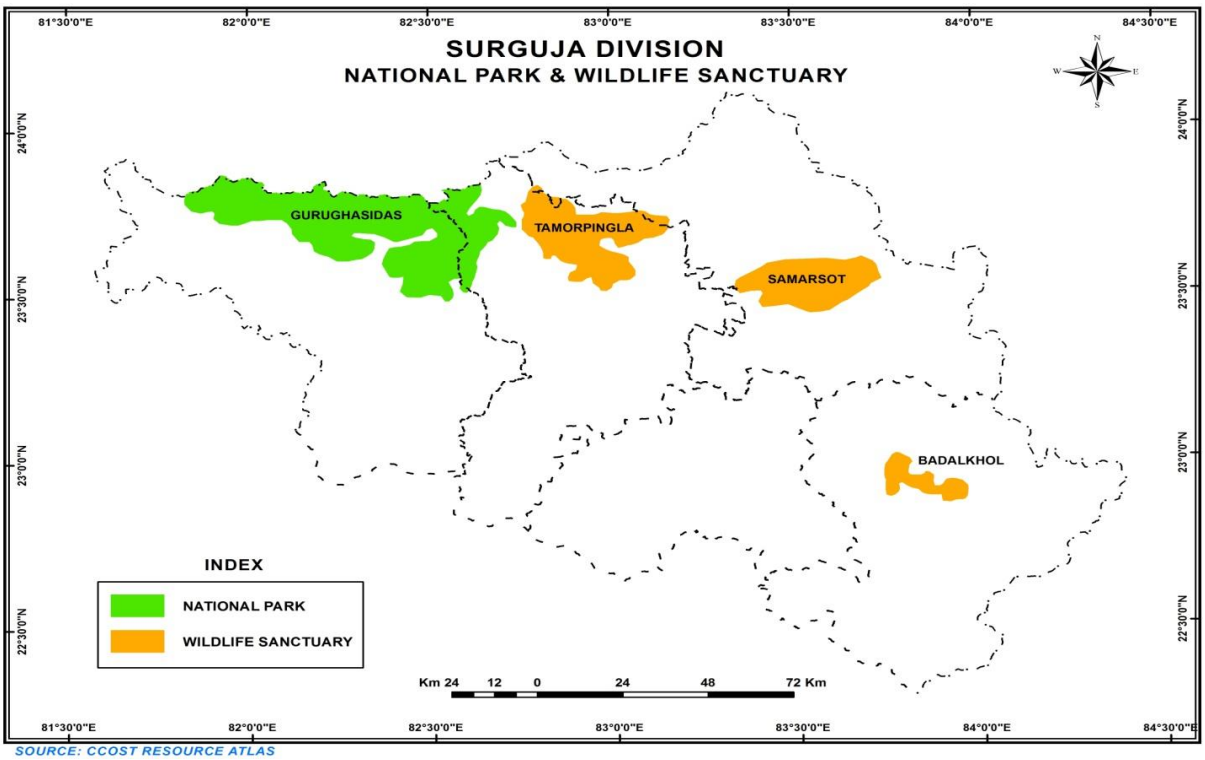

Fig. No. 17 National Parks and Sanctuaries.

Semarsot Wildlife Sanctuary:

The Semarsot Wildlife Sanctuary is in Ramgarh Hills, on the Ambikapur Daltongunj route, close to Semarsot. The area of the sanctuary is 430.36 sq. km. It shares a border with Bihar.

This region is where the Tropic of Cancer passes through. In the sanctuary, mixed deciduous trees dominate. Here, sal trees predominate. Another tree species that might be found here is in riverine forests. Some of the wildlife species found at Semarsot Wildlife Sanctuary are nilgai, chital, sambar, chinkara, wild boar, fox, and jungle cats. The sanctuary is best explored from January to May. The Surguja district administrative centre, Ambikapur, is 50 kilometres away from Semarsot. The railroad station closest to Ambikapur, Gandhi Chowk, is 18 kilometres from Darima Airstrip.

Fig. No. 18 Semarsot Sanctuary.

The region is located in the northwestern part of the Ramgarh Hills, facing northeast. The region shares an eastern boundary with the state of Bihar. The Tropic of Cancer crosses the region. The sanctuary contains four types of forests: sal, mixed, deciduous, and riverine. According to the sanctuary's 1997 wildlife census, there was one tiger and nineteen leopards. There were also additional animals discovered, including gour, chital, sambar, sloth bear, nilgai, chinkara, wild boar, fox, jungle cat, and wild dogs. There are also several birds and reptiles to be viewed.

Tamor Pingla Wildlife Sanctuary

The Tamor Pingla Wildlife Sanctuary is located in Surajpur District, the northern part of Chhattisgarh. It is named after the region's notable old landmarks, Tamor Hill and Pingla Nalla, as well as the surrounding states, such as Jharkhand, Uttar Pradesh, and Madhya Pradesh. The Tamor Pingla Wildlife Sanctuary is part of the Surguja Forest Circle, and Ramkola serves as its administrative centre. Tamor and Pingla are two sizable reserve forest blocks, and there are also nine smaller conserved forest areas.

Fig. No. 18 Tamor Pingla Sanctuary.

The total geographical area of the Tamor Pingla Sanctuary is 60852.72 hectares, and the forest area of the Tamor Pingla Sanctuary is 58921.531 hectares. The Rihand River forms the western boundary, the Bonga Nalla forms the eastern boundary, and the Moran River forms the northern boundary. In 1978, this was declared a wildlife sanctuary. The government of Chhattisgarh designated it as part of the Surguja Jashpur Elephant Reserve in 2011. Within this sanctuary, there are seven commercial villages: Khond, Injani, Archoka, Durgain, Kesar, Chattauli, and Dhaulpur. These villages, except Khond, are quite small, with fewer than 20 households. With a surface area of 250 sq km, the Tamor Hills is a tableland that rises rapidly from the nearby settlements of Tamki, Ghui, and Barpetia. The area, which is under the Tamor, Khond, and Pingla Ranges of the Surguja Jashpur Elephant Reserve Forest Division, consists of Sal and bamboo forests. Spread over 608.55 sq km, the sanctuary supports Asian elephants, Bengal tigers, Indian leopards, bears, Sambar deer, nilgai, chital, bison, four-horned antelope, chinkara barking deer, wild boars, wild dogs, wolves, Golden jackals, striped hyenas, hare, cobras, nag, pythons, red jungle fowl, brown jungle fowl, and green pigeon. The sanctuary is about 35 km (22 mi) north of Surajpur. Surajpur Railway Station is the nearest. Pratapur is the headquarters for range officers and employees, and Ramkola is the sanctuary's centre. It is located 42km from Wadrafnagar and 40 km from Pratappur. The Tamor Hill and the Pingla Nalla, two significant features of this tract of land, are the source of the name for the Tamor Pingla Wildlife Sanctuary, which is also located in the Surjuga District (stream). The Moran River, which flows through it and eventually empties into the Govind Ballabh Pant Sagar in Uttar Pradesh, is another feature of its landscape. The

sanctuary's closest rail station is Bishrampur. Ambikapur is a nice pit stop for travellers visiting Tamor Pingla Fauna Sanctuary, where they can see the sanctuary's diverse wildlife. The Tamor Pingla Wildlife Sanctuary is covered by hills, a plateau, and an extensive valley with very dense Sal and mixed forests. 40 per cent of the area is hilly, and the Sal forest density is about 0.7-0.9. The entire sanctuary is within the catchment area of the River Rihand. The Tamor Pingla Wildlife Sanctuary is located in Chhattisgarh's Surajpur district. It is bordered to the north by the Moran River, to the east by the Bonga Nalla, and to the west by the Rihand River. The 608.55 sq km wildlife sanctuary is located around 35 kilometres north of Surajpur. The climate in the sanctuary is pleasant and temperate. Normal summer temperatures are high and dry, whereas winter temperatures are lower. With an average rainfall of 1304 mm, summer has more rain than winter. The sanctuary has an average yearly temperature of 24.3 °C. The entire forest is covered in sal and bamboo, giving it a lush green appearance. The optimal time to visit TamorPingla Wildlife Sanctuary is between November and June. The weather is agreeable and pleasant throughout these few months, allowing visitors to make the most of their exploration of the wild forest. Animals that live in the sanctuary include Asian elephants, Bengal tigers, Indian leopards, bears, Sambar deer, wild boars, dogs, and wolves, as well as blue bulls, chital, bison, four-horned antelope, chinkara, barking deer, red and brown jungle fowl, Golden jackals, Striped hyenas, hare, cobras, nag, pythons Keep your cameras at the ready in case you happen to spot some of the key attractions, such tigers, golden jackals, or green pigeons.

Badalkhol Wildlife Sanctuary

Badalkhol Wildlife Sanctuary holds a special place in Chhattisgarh for its biodiversity, with high wildlife density. Geographically, it ranges between 22 ° 52' and 23 ° 30' North and 83 ° 04' to 85 ° 05' East, falling under Survey of India toposheet 64N/9.13 and 64M/16. From the district headquarters in Jashpur, this sanctuary is roughly 70 km away. In the Badalkhol wildlife sanctuary, there are 32 forest blocks, covering 104.454 square kilometres in the notified area and 113.92 square kilometres in the planimetric area. The sanctuary is 14.5 kilometres long from north to south and 22 kilometers wide from east to west. The watershed basins of the Ib and Dodki rivers encompass the entire sanctuary. As much as 44% of this Indian state's total land area is covered by deep forests and animal sanctuaries. Badalkhol Wildlife Sanctuary in Chhattisgarh is open year-round; however, the best time to visit is from November to June. There is a large variety of vegetation and fauna, much like in other wildlife sanctuaries. The Badalkhol Wildlife Sanctuary in Chhattisgarh contains mixed

forests of various kinds, rare teak woods, and evergreen sal forests. Deer, chinkara, gazelle, and spotted deer are the key species in the sanctuary. Other species include the jackal, hyena, sloth bear, sambar, chausingha, wild boar, and nilgai. Peacocks, fowl, pigeons, quail, parrots, and storks are some of the various birds.

Fig. No. 18 Badalkhol Sanctuary. (entrance)

The Badalkhol Wildlife Sanctuary is home to tigers, leopards, and occasionally migrating birds. Although they are rare, leopards and tigers can also be seen at the Badalkhol Wildlife Sanctuary. Storks, peacocks, pigeons, parrots, quail, and many more magnificent migratory birds that pass through the Badalkhol Wildlife Sanctuary are among the various birds that live here. Visitors who are fortunate enough may occasionally see specific rare birds in the refuge.

Tourist Flow in the Surguja Division

The provided table outlines the annual tourist flow across the five districts of the Surguja Division for the 2019-20 fiscal year, detailing a total regional volume of 208,586 visitors. Surguja District emerges as the premier travel destination within the division, capturing the largest market share with 82,264 tourists, which accounts for 39.43% of the total regional traffic. Surajpur District follows as the second most popular destination, drawing 58,255 visitors and securing a substantial 27.92% share of the tourist flow. Together, these two leading districts command over two-thirds of the entire tourism market in the division, highlighting their status as the primary cultural or natural hubs of the region. The remaining share of tourism is distributed among Jashpur, Balrampur, and Koriya districts, which see moderate to low visitor volumes. Jashpur District attracted 29,489 tourists, translating to 14.13% of the total, closely followed by Balrampur District, which recorded 26,370 visitors

or 12.64% of the regional share. In contrast, Koriya District experienced the lowest visitor traffic in the division, registering only 12,208 tourists, which constitutes a minor 5.8% share. This data highlights a significant imbalance in tourism distribution across the Surguja Division, pointing to a concentrated travel market dominated by Surguja and Surajpur, while revealing growth potential for the lesser-visited districts.

Table 1.2 Surguja Division: Annual Tourist Flow.

S. No	District	Tourist	Tourist flow (%)
1	Koriya	12208	5.8
2	Surajpur	58255	27.92
3	Surguja	82264	39.43
4	Balrampur	26370	12.64
5	Jashpur	29489	14.13
Surguja Division		**208586**	**100**

Source: Annual Report Tourism Department, 2019-20

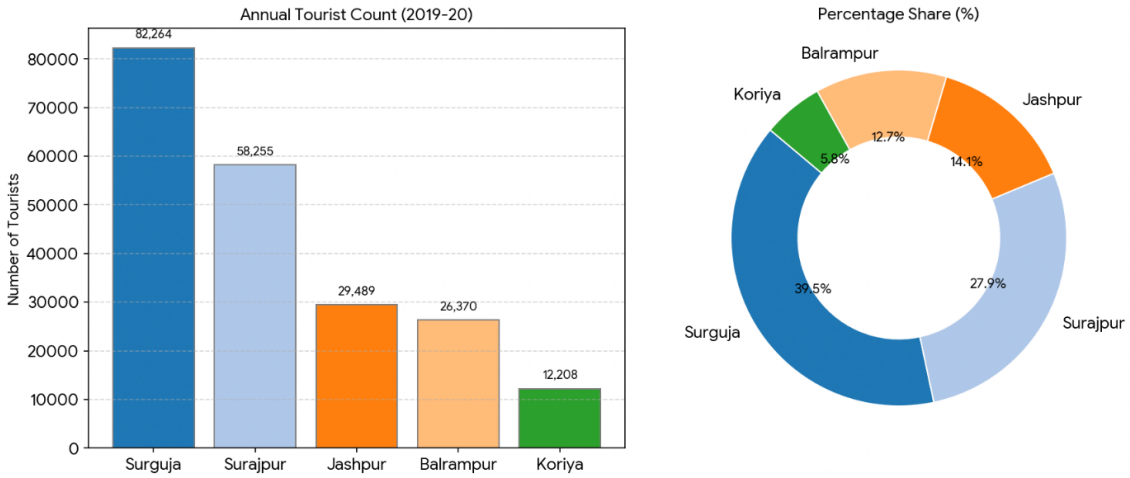

Fig No. 19: Annual tourist flow.

The annual analysis of tourist flow for eco-tourism locations in 2014, 2019, and 2023 reveals significant variances in visitor trends. In 2014, the flow was modest, with a noticeable peak in April (34,587 tourists) and the lowest figure in June (5,384 travellers). By 2019, tourist numbers had increased dramatically, notably in March (95,027), indicating a growing interest in eco-tourism and possibly improved infrastructure and accessibility. Analysis of monthly tourist flow.

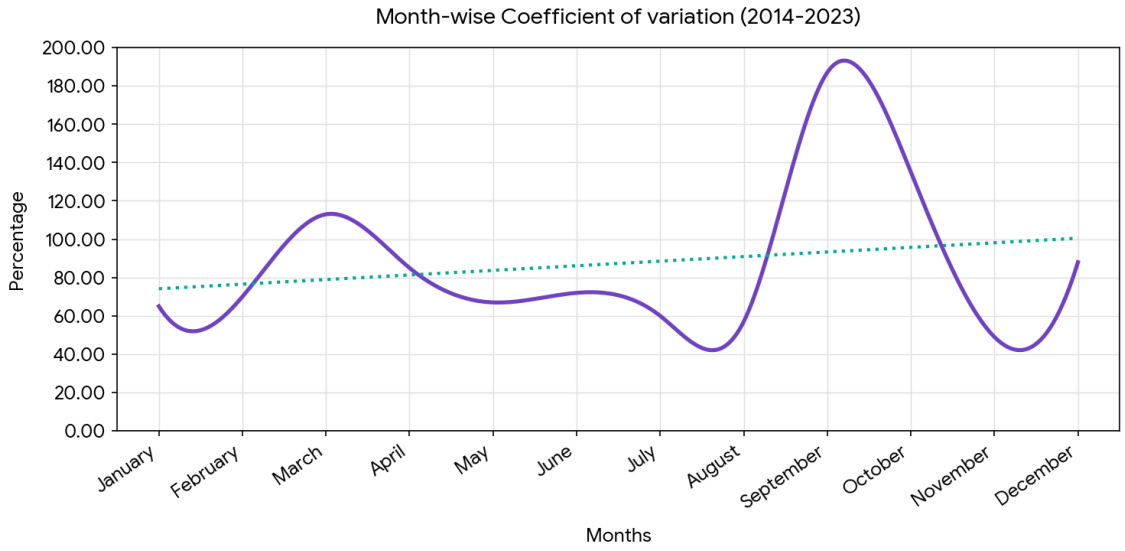

Fig No. 20: Annual tourist flow.

Demonstrates distinct seasonal patterns. In 2023, visitor arrivals increased dramatically, with big peaks in September (194,283) and November (180,746), showing the growing importance of eco-tourism in the region. Tourist numbers in the early months of the year, such as January and February, remained high, indicating consistent demand during the cold season. The coefficient of variation (CV) gives further information about the stability of these flows. March (CV 113.23%) and September (CV 184.50%) show significant changes, indicating that arrivals in these months are heavily influenced by seasonal events, weather conditions, or cultural festivals. Similarly, October (CV 148.62%) indicates significant variability in inflows. These months can thus be considered peak tourist times, but they also present issues for tourism management due to congestion and strain on local infrastructure. In contrast, November (CV 50.49%) is the steadiest month, followed by July (59.74%) and August (63.01%), which have very predictable flows. These months are considered the off-season for travel, as tourist numbers are more balanced and manageable. Recognising these seasonal changes is critical for efficient tourism planning because it allows stakeholders to plan for peak months while also supporting efforts to improve tourist arrivals during the off-season. These are known as the off-season for travel, when visitor flows are largely balanced and infrastructural pressure is lower. Other months, such as January, February, May, and June, exhibit moderate volatility, indicating a consistent but notable change in arrivals.

According to the data, peak visitor activity occurs in March, September, and October, with the most constant off-season periods being November, July, and August. Understanding

seasonal patterns is critical for planning infrastructure, allocating resources, and building long-term tourist strategies that balance peak and low-demand times.

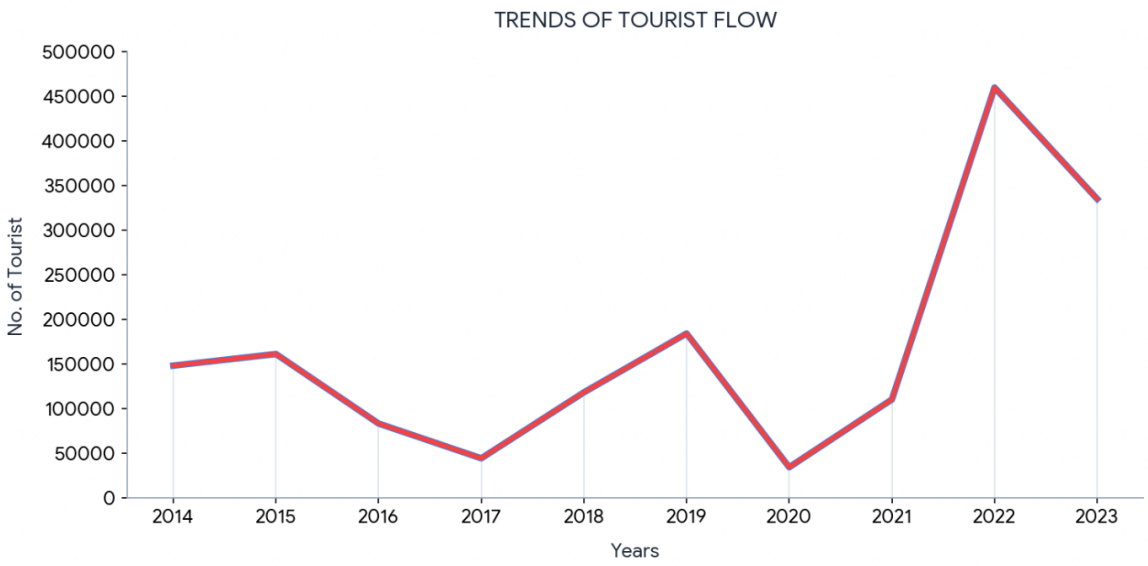

Fig No. 21: trend of tourist flow.

According to the data, peak visitor activity occurs in March, September, and October, with the most constant off-season periods being November, July, and August. Understanding seasonal patterns is critical for planning infrastructure, allocating resources, and building long-term tourist strategies that balance peak and low-demand times. According to the data, peak visitor activity occurs in March, September, and October, with the most constant off-season periods being November, July, and August. Understanding seasonal patterns is critical for planning infrastructure, allocating resources, and building long-term tourist strategies that balance peak and low-demand times. The annual tourist flow data from 2014 to 2023 demonstrates that the number of tourists fluctuates significantly, moving up and down over time. The neighbourhood had 146,377 tourists in 2014, and that figure increased to 160,738 in 2015, indicating the first signs of expansion. However, the numbers decreased drastically in 2016 (82,268) and again in 2017 (44,756), indicating that tourism suffered a significant setback, most likely due to issues with infrastructure or external events.

DISCUSSION

The studies of climate and tourism data in Surguja reveal a considerable correlation between temperature, rainfall, and tourist flow patterns. Temperature statistics from 2014 to 2024 show a moderate warming trend, with the average temperature rising by roughly 0.9°C every decade. Maximum temperatures increased by approximately 1.8°C, while minimum

temperatures were roughly steady. These changes indicate that summers have gotten hotter, especially in May and June, when temperatures consistently reach 38-39°C. These rising patterns are consistent with broader global climate change observations and have significant consequences for seasonal tourism demand. Precipitation in the region is very seasonal, with the majority falling between June and September, coinciding with the monsoon. July and August consistently had the most rainfall, but November and December were relatively dry. This significant seasonal cycle influences accessibility to ecotourism locations. Tourist flow data confirms the effects of these climatic changes. Tourist arrivals were quite small in 2014, peaking at 34,587 in April and falling drastically to 5,384 in June. By 2019, arrivals had climbed dramatically, with March reaching 95,027 visitors, indicating increased eco-tourism activities. The return in 2023 was even more dramatic, with September (194,283) and November (180,746) becoming the top months, indicating that both climatic and cultural factors influenced tourism demand. The coefficient of variation (CV) study shows that September (CV 184.50%) and October (CV 148.62%) saw extremely irregular arrivals, which were most likely caused by monsoon variability and seasonal activities. In contrast, November (CV 50.49%) had the most consistent tourist flow, making it a reliable month for developing tourism infrastructure and services.

FINDINGS

The findings show that seasonality has a significant impact on tourist flow, with March, September, and November being peak months, whereas June, July, and August frequently see variations due to monsoon conditions. The combined information from temperature, rainfall, and visitor flow datasets emphasises the need for climate-sensitive and seasonally adaptive tourism planning in the Surguja division.

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