

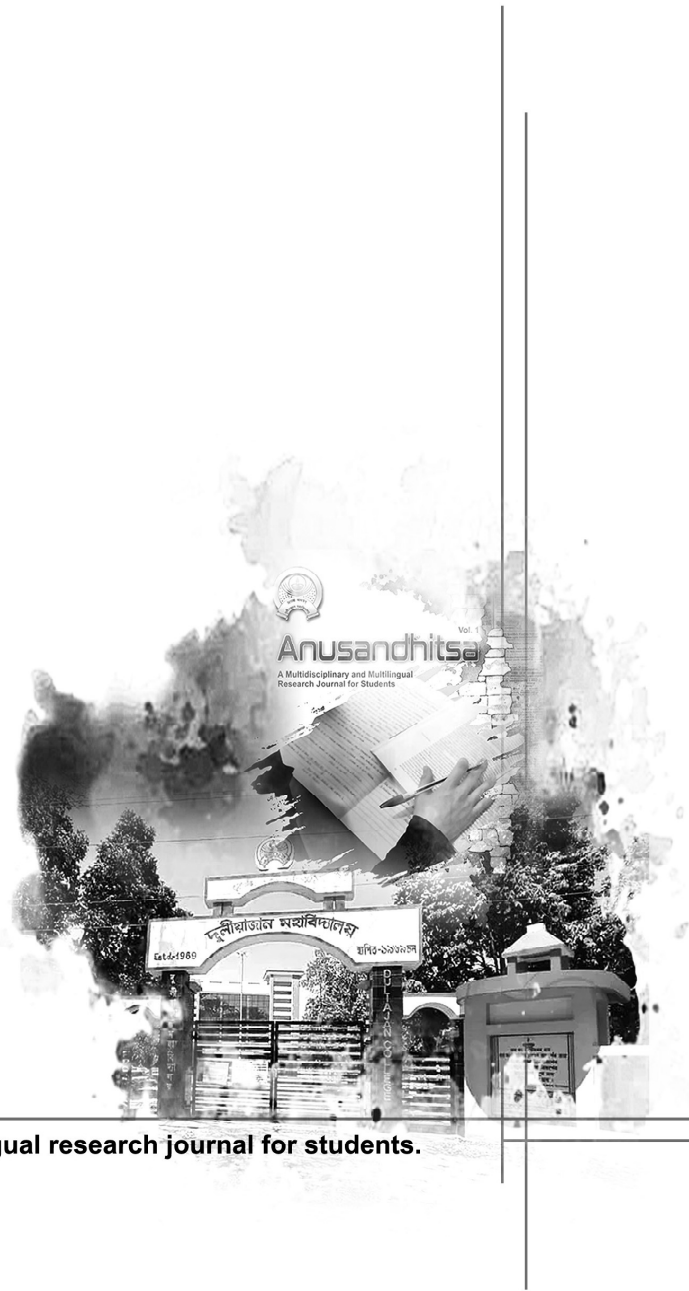


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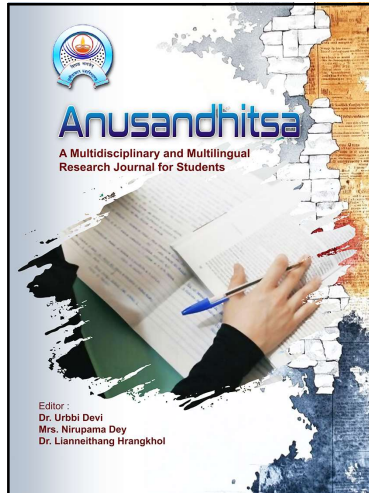
A Multidisciplinary and Multilingual
Research Journal for Students

Editor :
Dr. Urbbi Devi
Mrs. Nirupama Dey
Dr. Lianneithang Hrangkhoh



Anusandhitsu

A multidisciplinary and multilingual research journal for students.



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Forwarding Words from the Principal's desk

It is indeed a matter of great pride and satisfaction to witness the publication of a student research journal '*ANUSANDHITSA*' of Duliajan College for the first time in its history. This journal, with its multilingual and multidisciplinary approach, is not only a platform for academic expression but also a testimony to the intellectual curiosity, creative zeal and research-oriented mindset of our young students.

In today's world, knowledge can no longer remain confined to the boundaries of disciplines or languages. The spirit of curiosity thrives best when diverse perspectives meet and interact. By embracing multilingual and multidisciplinary research, '*ANUSANDHITSA*' upholds this very spirit, encouraging students to cross conventional boundaries, to think critically, and to articulate their ideas in ways that are inclusive and holistic.

At Duliajan College, we have always strived to nurture an environment where students are not just receivers of knowledge but also active contributors to its creation. Research at the undergraduate level instills in learners a sense of responsibility, patience and perseverance. It teaches them to question, to analyze and to synthesize ideas in ways that go beyond classroom learning. This journal, therefore, is a reflection of our institution's commitment to foster a culture of curiosity and innovation among students.

I must acknowledge the sincere efforts of the editorial team, the contributors and the faculty mentors who have guided and motivated our students in shaping this volume. Their dedication has made '*ANUSANDHITSA*' a reality and their vision has given our learners a stage to showcase their potential. I am confident that this journal will inspire future batches of students to explore new frontiers of knowledge and to contribute meaningfully to the academic community.

On this occasion, I extend my best wishes to all the contributors, editors and readers of '*ANUSANDHITSA*'. May this journal grow with each edition and emerge as a distinguished platform that represents the vibrancy, creativity and intellectual depth of our students.

Let '*ANUSANDHITSA*' be not merely a collection of writings but a journey of discovery, a pursuit of truth and a celebration of the limitless possibilities of young minds.



Duliajan College always strived to nurture an environment where students are not just receivers of knowledge but also active contributors to its creation.

Dr. Lok Bikash Gogoi
Principal,
Duliajan College, Duliajan
Date: 18/08/2025



EDITORIAL

A student journal is one of the significant necessities for the students' holistic development in the current period. A student journal during graduation, based on research on any specific topic or area, helps students develop critical thinking and inspires them to get involved in the research world.

The term 'research' signifies a boundless journey. This research can be scientific, analytical, data-based, and literary. Gone are those times when people thought of doing research only after graduation or post-graduation. In a fast-developing world with new research advancements, individuals pursuing their degrees must cultivate a research-oriented mindset to keep pace. A student journal is one of the significant necessities for the students' holistic development in the current period. A student journal during graduation, based on research on any specific topic or area, helps students develop critical thinking and inspires them to get involved in the research world. The research world, which is beautiful and at the same time challenging requires more and more enthusiastic and determined scholars. Their experiences in writing a research paper in their student life boost their confidence as well as their dream to enter the research world. The students, under the guidance of their teachers, learn the basics of writing a research paper, which enables them to get enrolled in any institution for research or for any research project easily.

In the current period, when students are busy with the digital world and focus more on shortcut methods, it has become urgent to shift their interest toward more engaging tasks. It is evident that we cannot engage every student in research work, as it depends on their interests and future plans, but if a few students can be engaged, it will be a significant success. The first edition of "Anusandhita : A multidisciplinary and Multilingual Research Journal for Students" focuses on student engagement and interest. It was planned and executed within a short span of time, so it was open for all streams to select any theme or topic to write about.

Moreover, the interest of the students and the faculty who guided them has encouraged us to publish more issues in the future. We have received a total of fifteen research papers from different departments within a very short period, and the efforts and attempts of the students are truly commendable. We are thankful to the students for their contributions and to the faculty mentors for their immense support. The editorial team has done its best to give it a proper shape. Despite scrutiny by the editors, some imperfections might be found by readers. We hope readers will review the articles and provide us with constructive feedback that will help us improve.

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Unveiling the Seamy Side: A Critical Study of Marginality in 'The Wilted Flower'

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ABSTRACT

In 'The Wilted Flower', Arup Kumar Dutta composes a stark and intimate image of India's forgotten urban peripheries. This Article critically analyzes the narrator's representation of the 'seamy side' - the slum not merely as a place of poverty, but as a volatile site where social hierarchies, economic exploitation, and human vulnerability intersect. The narrator of the story does not simply present a physical environment; instead, he builds a psychological and emotional landscape that discloses the everyday hardships, repressed aspirations, and unspoken endurance of slum dwellers. By concentrating on the symbolic role of the slum landscape, this paper investigates how Dutta employs imagery, characterization, and narrative tone to expose the moral contradictions of contemporary society. The article's argument is rooted in a humanistic geographic perspective on how space, identity, and marginality interconnect. Most importantly, the article suggests that 'The Wilted Flower' presses readers to embrace unpleasant realities surrounding invisibility, dignity, and the price tag of human achievement for urban advance.

Keywords : Bauri Gate, seamy side, realism, Post colonialism.

INTRODUCTION

The short story 'The Wilted Flower' starts with the line, 'There are no flowers at Bauri Gate'. This opening sentence of the short story, 'The Wilted Flower' makes a reference to Bauri Gate, which is not simply a place with a road, rows of houses and people moving about in one direction or another. The above line defines the essence of the short

story by introducing readers to the power of literature to describe the truth of the life of the citizens of Bauri Gate.

The story is set in the post colonial period where incidentally, India as an independent country since 1947 has not met the expectations of the common people. The writer in the very beginning depicted the scenario of the Bauri Gate where it has dust and a smell compounded of sweat, urine, horse-dung and exhaust fumes. Its walls are stained with yellow urine and red paan juice, and flies swarm everywhere. The area is home to people of various professions, including pimps, prostitutes, tonga drivers and other night time workers. In other words, the short story "The Wilted Flower" focuses on the seamy side of India through depicting a place like Bauri Gate in detail.

Arup Kumar Dutta, a well-known fiction writer from Assam of the contemporary period in India was born in Jorhat, Assam, in 1946. He did his schooling in Lawrence school in Himachal Pradesh and after that he completed his masters in English from Delhi University. Then on, his field of activity became Assam where he settled down permanently. A significant aspect of his life is that he chose writing as his sole occupation and has written fiction, short and long, non-fiction and journalistic accounts. He was awarded the Padma Shri in 2018 for his contribution to literature and education. In all these, his aim has been to comprehend the multi-layered social life in its many hues. His fictional works include *The Kaziranga Trail* (1978), *The Ahoms* (2016), etc. His works of non-fiction such as *The Khongiya Barua's of Thengal* (1994) and *Indian Railways, The Final Frontier* (2002) exemplify his



engagement with diversity in contemporary life.

AIMS AND OBJECTIVES

- ◆ To discuss Bauri Gate as a symbolic place representing India's seamy side.
- ◆ To highlight the narrator's role as both an observer and participant within the seamy environment of Bauri Gate.
- ◆ To situate the narrative within the broader context of postcolonial and realist traditions in Indian literature.

METHODOLOGY

A qualitative methodology is employed, focusing on a close reading of the short story 'The Wilted Flower' by Arup Kumar Dutta to analyze the narrator's depiction of the seamy side of India. I have also used Secondary sources, including research articles, books, etc.

DISCUSSION

The author says that Bauri Gate can be seen as a symbolic representation of India's seamy side—a place that brings out the harsh realities often hidden behind the country's cultural richness and economic progress. It is a space marked by poverty, marginalization and societal neglect, reflecting the struggles of people who live on the edges. In literature, such locations often stand for the dark bottom of urban life where survival is a daily challenge, and the contrast between hope and despair is most visible. Bauri Gate, therefore, serves as a reflection to understand the complexities and inequalities deeply rooted in Indian society. In this story, Arup Kumar Dutta had said, "There are no flowers in Bauri Gate.../...buzzing lazily over heaps of warm horse-dung." The narrator here tries to let the reader walk into the seamy side of India through his depiction of the Bauri Gate. The opening sentence of the short story makes a reference to Bauri Gate which is not simply a place with a road, rows of houses and people moving about in one direction or another. He very subtly criticized the slum area of India through its depiction of Bauri Gate which was all dusted, combined with the smell of

sweat, urine, horse-dung and exhaust fumes. Its walls are stained with yellow urine and red paan juice, and flies swarm everywhere. Other flies loiter around humans, attracted by their sweat. Big, beautiful bluebottles, buzz slowly in the air.

The story strikes us as a strong symbol of the struggles through which the common masses in India go routinely. The story reflects or highlights the journey of the narrator as he navigates from being apart of a non-too-rich but well settled family to live in a place like Bauri Gate which is often regarded as a seamy side of India. In this story, Arup Kumar Dutta had said, "Nowadays, whenever I am tired of being what I am, I wish .../...I would not only see the seamy side of life I would be it." The narrator is a student of Fine Arts course and has chosen to stay at Bauri Gate since he wanted to save money as well as know about what is the seamy side of India. Though he came from a well settled family, he still chose to stay at Bauri Gate so as to witness the seamy side of life which would help him in his artistic journey. The narrator sees it as a place of opportunity, where multiple goals can be achieved at once. As he left his family and town to join the Institute of Fine Arts he had to find a place to stay in the big city but by choosing a poorer section of the city, he had achieved a multiple goals at once since lodging would be cheap, he could save money and on the other hand, he would also get the advantage to not only see the seamy side of life but also to live it. Since he was living there he was experiencing the various struggles, complexities and day to day challenges faced by the people of that area. The narrator had a fascination for painting the human face which was an advantage for him as he could witness the various complex faces of the people living thereby. The narrator had become an integral part of the place and was emotionally attached to all the families living there but especially with the Hazibaba's family. The narrator was truly living the seamy side of life.

The author through his short story "The Wilted Flower" aims to criticize the broader postcolonial condition very subtly by engaging critically with the themes of Postcolonial Indian



literature. The story sought to reclaim indigenous voices that were marginalized or misrepresented during colonial rule, and continues to interrogate the enduring effects of colonialism on language, social structures, and national consciousness. By depicting localized experiences, vernacular sensibilities, and mixed identities, this narrative reflects the complexities of post-independence Indian society. The article explores how characters, settings, and conflicts depict these broader postcolonial concerns, offering a lens through which the reader can examine the legacies of empire and the evolving discourse of nationhood.

Parallel to this, the story also derives from the tradition of Indian literature based on realism, which places a focus on the presentation of everyday life, social reality, and material conditions in an authentic and critical manner. Realism in Indian literature tends to act as a form of social criticism, with its focus on class, caste, gender, and rural-urban relations. In situating the story in lived lives and credible events, the article emphasizes the socio-political forces that mold individual and collective trajectories. Such a realist strategy allows the text to transcend idealized or general descriptions and instead provide an embedded, sophisticated understanding of the issues facing modern Indian society. The talk points out that the convergence of postcolonial themes and realistic aesthetics not merely enriches the story but even places it under a major strain of Indian literary tradition.

CONCLUSION

In 'The Wilted Flower', the author shows the

dark and unpleasant side of Indian society, where people face poverty, corruption, and different types of inequalities. The narrator doesn't just describe these problems, but also criticizes them in a very subtle manner. Through clear and emotional storytelling, the story draws attention to how poor people, especially women and children suffered because of a deep rooted system that often ignores them.

What makes the narrator's voice strong is that it doesn't exaggerate the pain or try to shock the reader. Instead, it tells the truth in a simple but moving way that makes readers feel and think. Even though the story is sad, it's meant to make people aware and want change. In the end, the narrator gives a powerful message about the problems in society, asking readers to see the truth and care enough to help fix it.

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SELF-DECLARATION

I, Arti Kumari Singh certify that this project is my own work, based on my personal study and research and that I have acknowledged all material and sources used in this paper, whether they be books, articles or any other kind of document.



SHASHI DESHPANDE'S 'THE INTRUSION' THROUGH THE LENS OF FEMINISM

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ABSTRACT

Shashi Deshpande's 'The Intrusion', is poignant exploration of a woman's silent and unspoken struggle within the enclosed boundaries of a patriarchal marriage. Through the lens of feminist theory, the story discusses about themes like marital rape, emotional suppression, self-identity of a woman in a patriarchal society, her desires, expectations and needs. The protagonist's inner conflicts due to societal expectations and personal discomfort reflects the violation done to women in the society, a male dominant society. Deshpande on behalf of all the women challenges the normalization of oppression of women. The story is a critique of gender roles and a voice for valuing individuality and consent of women, making it a significant feminist text in Indian English Literature

Keywords: feminism, marital rape, violation, suppression, individuality, patriarchal society.

INTRODUCTION

Shashi Deshpande, through 'The Intrusion', displays the feminist approach. The male dominant Indian society, where the psychology of understanding differs between men and women. Men, who always prioritize and are conscious about their rational attitude always contrasts when women are conscious about the emotional attitude. And the gap between both the conditions lead to the misunderstandings. The author in 'The Intrusion' has introduced a newly married couple and has focused on the condition of the couple in their married life. The short story discusses about their whole situation, when they went for their

honeymoon after getting married. As they had an arranged marriage, the wife wanted to know about her husband and wanted to create an emotional bond with him. But on the other hand, the husband was only focused on having sex with her. He thinks honeymoon is nothing but for having sex only, and in the end, he ends up forcing her to have sex with him, even after her clear denial. Through the wife's lenses as the narrator, the short story acquaints the readers with the feelings of a woman when she unwillingly finds herself trapped in the societal norms, and it's expectations. A feeling which suffocates, makes feel uneasy, hesitate, feelings which are left unexpressed, because none is taught to express but to suppress and to be submissive.

AIMS AND OBJECTIVES

- ◆ To analyse the short story through a feminist perspective
- ◆ To examine how the story portrays the violation of bodily autonomy and the concept of consent within marriage.
- ◆ To explore how the author uses silence, self-introspection, inner monologue as a tool of feminist expression.

METHODOLOGY

This research paper is a qualitative study and analytical approach rooted in feminist literary criticism. The study involves a close textual analysis of Shashi Deshpande's short story, 'The Intrusion' focusing on narrative techniques, character development, and thematic elements that reflect the feminist discourse. The story is examined within the socio-cultural context of Indian society, where traditional gender



expectations often shape women's experience within marriage. The research paper also includes analysis of secondary sources like research articles and papers.

DISCUSSION

The title of the story, 'Intrusion' itself signifies a charged term. 'Intrusion' symbolises a stranger's interference or uninvited, inappropriate entry into one's territory or privacy. In the story, the couple barely know each other, so the wife expected to know her husband, enjoy the honeymoon days with him and after creating the emotional bond, and friendliness, she would involve in sex with her husband. But the husband, had another perspective towards marriage and honeymoon. For him marriage was like a duty, and authority over his wife and her life. As the stereotype Indian society, he too thinks that he has each and every right to his wife's life and her body. The wife's consent, mutual understandings, her desires, opinion, perspectives are not things to be discussed. The wife wanted to grow their relation slowly but the husband was in rush to have sex her, as because they are married and are on their 'honeymoon'.

Honeymoon by no means of enjoying on sex, but getting acquainted with each other, as in most of the arranged marriages, couples barely know each other. The story shows the feminist concerns and point of views show a wife's interest enjoying evening time on the beach, talking to her husband and being friends with him. For a wife this is the time know each other well, their interests, desires, approach towards life and every other aspect. In Indian culture marriage is the first priority and understanding their partner, the life they are going to spend with, is still secondary. The wife heard from her mother that her in-laws were in search of a "simple but sophisticated" (Deshpande, page:- 32) for their son who works in a foreign company, they wanted someone who could entertain and mix with foreigners and according to them she was the one. And as usual, the marriage was fixed by the families without her agreement to it. But she never thought of herself as "simple but sophisticated" (Deshpande, page:- 32) and was questioning

herself if she was one? With lots of doubts and questions in her mind, when she went to her father to refuse to get married, he in return asked her "Why", "What will you do then?", and "What's wrong with him?", (Deshpande, page:-28) and she had no answer to any of those questions. And she ended herself taking for granted. As the eldest daughter, she bears the reputation, responsibility of the family, she had two sisters after her to get married, so she had no other option, but to get married. She was never given any option to accept or deny the marriage. She was the 'simple but sophisticated' girl, perfect for the man and his family, but she was never asked if the man was the kind of person she wanted as her partner. Does he fit into the qualities she expected her partner to be?

The newly married couple, scarcely acquainted with each other; to follow the social customs the husband planned and decided the destination for their honeymoon, a beach. She was finding it difficult to walk on sand with her heels and saree, but more than that she was more irritated by her husband's presence around her. "I was conscious of an unreasonable pang of irritation against him. As though sensing my discomfort, he held my arm to help me, but awkwardly, too tight, and I wanted to protest, to release my arm from his constricting grip." (Deshpande, page 25). Deshpande, through the wife's inner voice has stated this to give the readers an overall idea about the touch which feels heavy, instead of warm and familiar. His hand, which he forwarded to help her, made her feel more awkward and uneasy, making her wanting to protest. She wanted to escape herself from his constricting grip, and feel free. This small narration actually mirrors the innermost feelings of a woman when she is trapped in a relationship she never agreed to have, but ends up tied to such bonds forcefully, after bringing up several reasons to her keep the reputation of the family.

The wife notices the condition of the room and the bed, but never dared to express the uneasiness, she felt in the room, "Just a jumble of smells. Even I sniff surreptitiously, a smell of



bedbugs" (Deshpande, page:-2). She never wanted to let her husband think as if she was showing some interest to have sex with him. She was ready to cope up with the uneasiness in the room, but was not ready to express what she was feeling. This shows the gap they had in between their understanding and comfort around each other. She imagines about the "bold-faced and experienced" (Deshpande, page:- 26) women who spent their precious time here, who could satisfy their man and make their vacation worthy. She compares herself with them, and wished if she could be like one of them. She was thankful to her "modest night dress" (Deshpande, page: -30) covering her body from her husband's eyes, the stares which always gives discomfort to her.

From the beginning, the husband who has been trying to say her indirectly that his only purpose during honeymoon is to have sex with her asks her why she's acting so strange. He expects his wife to act parallelly to his physical needs. "Do you think I enjoy feeling that I'm forcing myself on you? What's the problem? Why are you acting so strange? I felt contrite at the sight of his bewildered face. But I had nothing to say" (Deshpande, page:-31). He becomes frustrated by the end as she tries to maintain their physical distance, and denies to pay attention to all of his efforts. But as a husband of the patriarchal society, he prioritizes his rational perspective, as he thinks as he is the husband he has every right to his wife's body and privacy. The wife judged herself as a frigid woman, incapable of love. In insecurity she imagined herself, returning to her parents, rejected and shamed. But it was totally impossible for her to involve physically even before knowing each other properly, she "scarcely" (Deshpande, page:- 32) knew her husband and vice versa. She dreamed of romantic moments with her husband, like walking along the sea shore while holding hands. But she was totally after facing situations like this, where her husband cares only about having sex but nothing about her feelings, consent and comfort. He instead made her feel insecure about herself, and her along with her family's reputation. He raises his voice on her, criticising

her because of her "touch-me-nottish" (Deshpande, page:- 31) behaviour. According to him, if his wife keeps distancing herself, avoiding his physical touch and ignoring his efforts hints and efforts, how will they "know" each other. For him, knowing his wife means to have sex with her, explore her body, and satisfy his own needs. He had no idea about "emotional bond, mutual understanding, and consent". The concept of marriage differs between both the genders- for a man, it is about authority and responsibility but for a woman it is a beginning of a new chapter with a new person in her life.

By the end of the short story, Deshpande states, "At last, mercifully, it was over. By body having helped him by some strange instinct beyond and outside me. And the cry I gave was not for the physical pain but for the intrusion into my privacy, the violation of my right to myself." (Deshpande, page:-33) The above-mentioned lines, were the thoughts that were going on, on the mind of the wife after the husband forced himself on her. She clearly denied him, but the husband, to satisfy his physical needs, who thinks he has every right to her body, his wife's body, had sex with her while she was sleeping without consent. The narrator (the wife), mentions that it was not the physical pain but the violation to her rights made her feel the pain and disgust. "And then I woke up to realize that the sound of the sea was real, but I was on a bed, not on the beach" (Deshpande, page:- 32), the phrase indicates the absence of alignment in between her mind and body. Everything that happened to her was a pure shock, left her feeling devastated. Rape is not just when a woman is forced by some other unknown men, but it is also a kind of rape done in the society by the husbands with their wives, who forcefully get physical with without the female's consent. The rape in marriage, termed as "Marital Rape", where the wife is forced by her husband, without caring for her agreement, where the husband thinks he has every right to his wife. George Bernard Shaw famously argued that, a marriage especially motivated by financial security, is a form of "legalised prostitution".



CONCLUSION

Shashi Deshpande, a woman writer who has written many novels and short stories, showcasing the inequality, discrimination and injustice between males and females. The author advocates the women's right and its implementation in the society that even a married women cannot protest herself against her husband. If a couple is married that means both the partners have equal rights and views but in contrast its men who enjoy their rights and women have to bear physically, mentally and emotionally. Marriage is a beautiful bond that connects two people and help to fulfil each other, but the patriarchal society is built in a way where men are automatically inclined towards rationalistic mindset, where they prefer to suppress the women to show themselves as a man. Its not the fault of man particularly, but its about each and every individual in the society who choose to support patriarchy, while letting females suffer both mentally and physically. Terms and conditions which are to be followed, without caring and minding about the damages that may cause to one. But a husband, as a part of the same

society also has responsibility towards his wife, to make her feel respected, and build the emotional bond in between. Shashi Deshpande as a true feminist speaks of all the violation in the society; done to women, human dignity, modernity and freedom of expression. Her stories always resemble a familiar, real life of people which are important to express through words.

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SELF-DECLARATION

I, Jyotimoyee Talukdar, certify that this project is my own work, based on my personal study and research and that I have acknowledged all material and sources used in this paper, whether they be books, articles or any other kind of document.





Ecotourism and Dibru Saikhowa National Park

Submitted By -

Abinash Bora, Sandhya Chetry, Payal Kumari Doom, Manisha Kumari Gupta, Bikash Nolboria,
Luna Konch, Diya Das, Kangkona Tamuly, Rajdeep Tamuly, Priyanka Saikia and Rajdeep Kalita

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INTRODUCTION :

The Dibru-Saikhowa National Park, which is located in the districts of Dibrugarh and Tinsukia, Assam is spread over an area of 650sq km and is located near Assam's eastern border. It is designated as an Important Bird Area (IBA) and is known for its rare white-winged wood ducks and wild horses. In 1997, Dibru-Saikhowa National Park was declared India's ninth biosphere reserve, among the 18 existing biosphere reserves. In 1986, this protected area, formerly called Dibru Reserve Forest and Saikhowa Reserve Forest, was declared a wildlife sanctuary and 13 years later, it was declared a national park, in 1999. It is a rare national park in India that has the titles of

biosphere reserve, national park, and wildlife sanctuary.

The Dibru-Saikhowa National Park is located between the Brahmaputra and Dibru rivers in Assam, at a height of 118 metres above sea level. The grasslands and wetland vegetation of the Brahmaputra floodplains received protection when the Dibru-Saikhowa National Park was established in the year 1999. The annual rainfall of the park ranges from 220 to 380 centimetres. Dibru-Saikhowa National Park is a major biodiversity hotspot in the country, and it contains diverse flora and fauna. A mix of deciduous and evergreen forests as well as swamp forests are majorly found in this national park/biosphere. The national park



contains around 35% moist deciduous forest, 21% grassland, and 9% degraded forest. In north-eastern India, it is the largest swamp forest. *Dillenia indica*, *Bombax ceiba*, *Dalbergia sissoo*, and *Ficus* are some of the major flora present in Dibru-Saikhowa National Park. In December 2020, the Guwahati High Court postponed permission issued to Oil India Ltd. for hydrocarbon exploration in seven locations which also includes the Dibru-Saikhowa National Park. There was also a gas leak at the Baghjan oil field on 27 May 2020, near the Dibru-Saikhowa National Park. This disaster wreaked havoc on the flora and fauna of the park and forced more than 11,000 people to leave their homes.

1. REVIEW OF LITERATURE :

Dr. Sanjay Sen (December, 2015) in his research paper, "Environmental Impact & Eco-Tourism Management at Dibru - Saikhowa National Park" highlights the benefits of Eco-Tourism include an enhanced appreciation of natural environments both in terms of their intrinsic and economic worth for protection and conservation; the educational value of expasing visitors and locals to nature and conservation; and the potential of Eco-Tourisms to motivate the designation of additional natural areas far conservation and protection conversely, pressures originating from in appropriately managed infrastructure and visitors activities can adversely impact the receiving environment. The study of Dibru Saikhowa National park highlights that education in the best way to improve park management and raise awareness.

Eco-tourism has gained increasing attention as a sustainable development strategy, particularly in ecologically rich areas like Dibru-Saikhowa National Park. Saundarjya Borbora of Indian Institute of Technology Guwahati in his study "Tourist Potentiality Index: A Case Study at Dibru-Saikhowa National Park in Assam, India" highlight that the park possesses significant potential for eco-tourism due to its diverse wildlife, bird-watching opportunities, and trekking routes. Kolomy and Pagoi Pathar have been identified as

the most promising sites for tourism, with high tourist demand and resource availability. Eco-camps and surrounding areas also show significant potential for eco-tourism development. The study also indicates that while there is strong local interest in eco-tourism, the park remains underdeveloped due to a lack of infrastructure and promotion. Conflicts over resource use further limit its progress. However, with proper conservation efforts and community engagement, Dibru-Saikhowa could evolve into a well-developed eco-tourism destination, benefiting both the environment and local livelihoods.

Ecotourism promotes conservation and benefits local communities. In the report "Ecotourism and Dibru-Saikhowa National Park" by Ms. Geetirekha Dutta Mahanta highlights Dibru-Saikhowa National Park as a major ecotourism site in Assam, rich in biodiversity, including rare species like hoolock gibbons and river dolphins. Ecotourism creates jobs and supports conservation but faces challenges like wildlife disturbance, commercialization, and lack of local involvement. The Wave Eco-Tourism project shows how community-led efforts can balance tourism and sustainability. For success, proper infrastructure, government support, and strict conservation policies are essential to protect the environment while boosting the economy.

Ajay Kumar and Dinesh Kumar Meena in their report "An assessment of recreational values of Dibru-Saikhowa National Park, Assam using Travel Cost Method" estimates the recreational value of Dibru-Saikhowa National Park, Assam, using the Travel Cost Method (TCM). Dibru-Saikhowa National Park, attracting 3000-3500 domestic tourists annually, serves as a significant destination after Kaziranga National Park. The TCM analysis revealed an average consumer surplus of Rs. 2892.50 per tourist visit, resulting in an estimated total annual recreational value of Rs. 10.11 million. This value significantly surpasses the park's revenue from entry fees (Rs. 2.50 lakh), highlighting a substantial undervaluation of Dibru- Saikhowa National Park's recreational services. The findings



underscore the need for increased government investment to ensure the continued provision of the National Park's essential ecosystem services, as the current revenue model fails to reflect the park's true economic worth. This research emphasizes the importance of considering the broader economic benefits of protected areas beyond direct revenue generation, particularly in regions where tourism plays a crucial role in local economies.

3. OBJECTIVE OF THE STUDY :

The following objectives are set for the study -

1. To study the ecotourism prospects in Assam,
2. To consider Dibru-Saikhowa National Park as a ecotourism spot, and
3. To study the requirements to develop Dibru-Saikhowa National Park as a major tourist attraction spot.

Ecotourism is a form of tourism that involves visiting natural areas-in the remote wilderness or rural environments. According to the definition and principles of ecotourism established by The International Ecotourism Society (TIES) in 1990, ecotourism is "Responsible travel to natural areas that conserves the environment and improves the well-being of local people." (TIES, 1990). The characteristics of ecotourism are:

- ◆ Involves travel to natural destinations
- ◆ Minimizes impact
- ◆ Builds environmental awareness
- ◆ Provides direct financial benefits for conservation
- ◆ Provides financial benefits and empowerment for local people

4. STUDY AREA :

Dibru-Saikhowa National Park is located in the northeastern state of Assam, India, specially in the Tinsukia district. It covers an area of approximately 340 square kilometers and is situated between the Brahmaputra River and the Dibru River.

Maguri-Motapung Beel is the part of the Dibru-Saikhowa National Park. It lies on the southern boundary of the park and is an important

wetland area within the Dibru-Saikhowa Wildlife Sanctuary. The word Beel in Assamese means lake, and Maguri is the local name for a type of catfish. Ironically, a steep rise in fishing has led to the extinction of Maguri in the lake. The wetland spread over an area of 9.6 square kilometers, was declared an Important Bird and Biodiversity Area. Maguri Beel, an Important Birding Area (IBA) since 1996, is a wetland in Assam supporting a large human population dependent on fishing, and is a major stopover for wintering migratory birds, especially from November to April, attracting birdwatchers and ornithologists.

Here's a more detailed breakdown:

Maguri Beel as an IBA: Declared an Important Bird and Biodiversity Area (IBA) in 1996 by BirdLife International. Supports approximately 110 species of birds, including both resident and migratory species. Located in the Tinsukia district of Assam. A major stopover for wintering migratory birds, especially from November to April. Human Population and Livelihood: Large human population, with most people relying on fishing for their livelihood. The only mode of transport is the use of wafer-thin fishing boats.





Birdlife and Highlights:

Migratory Birds : Witness a spectacular influx of migratory birds during the winter months (roughly from November to March).

Resident Birds : Boasts a resident bird population equally captivating, including waders like the Little and Common Greenshank, the Black-winged Stilt, and the Painted Snipe.

Grassland Highlights : Some of the highlights from the grasslands include Jerdon's Babbler, Chestnut-capped Babbler, Marsh Babbler, and Black-breasted Parrotbill.

5. RESEARCH METHODOLOGY :

The study was conducted 19 December 2024 to assess the Travel Related Information and tourism related information of Dibru- Saikhowa National Park on the local community and tourist in terms of various categories like number of visit in DSNP, how did they arrive, accessibility, inter connectivity with other tourist sites, availability of quality of public transport, quality of infrastructure, variety of food & beverages, level of hygiene and sanitation, travel services, banking facilities, shopping and availability of daily needs, communication facilities, scenic beauty, wildlife safari, bird watching, pricing, value for money, etc.

This study was based on both primary and secondary data, a sample of 12 respondents was collected by our team . Some statistical tools like mean, median, mode, has been used for data analysis and represents results with the help of pie chart, table etc.

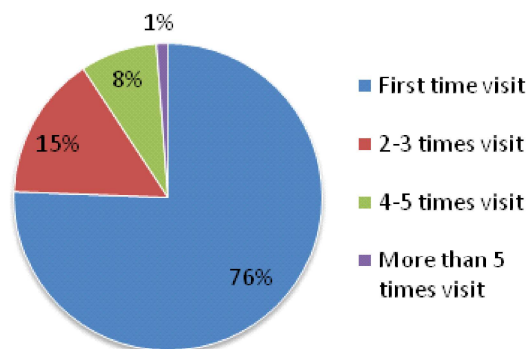
Some tourist meet by our team were :

- ◆ Benjam Seow (Malaysia)
- ◆ Chin Seow (Malaysia)
- ◆ Surajit Som (Kolkata)

6. ANALYSIS :

- ◆ Number of visit in DSNP

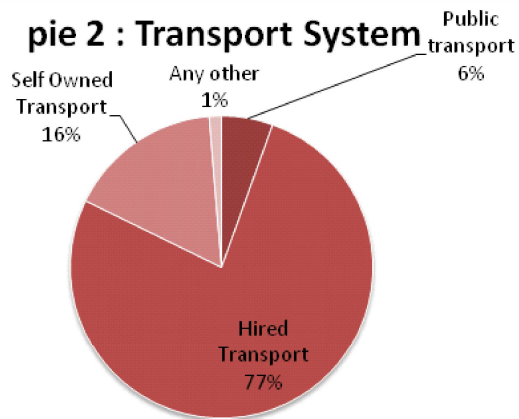
pie 1 : number of visit



The Pie chart 1, showing the percentage of people that how many times they visited Dibru Saikhowa National Park. According to the chart 76% of people or visitors , visits DSNP for the first time. 15% of people visits 2-3 times, 8% of people visits 4-5 times, and 1% of people visits DSNP more than 5 times.

◆ Transport System

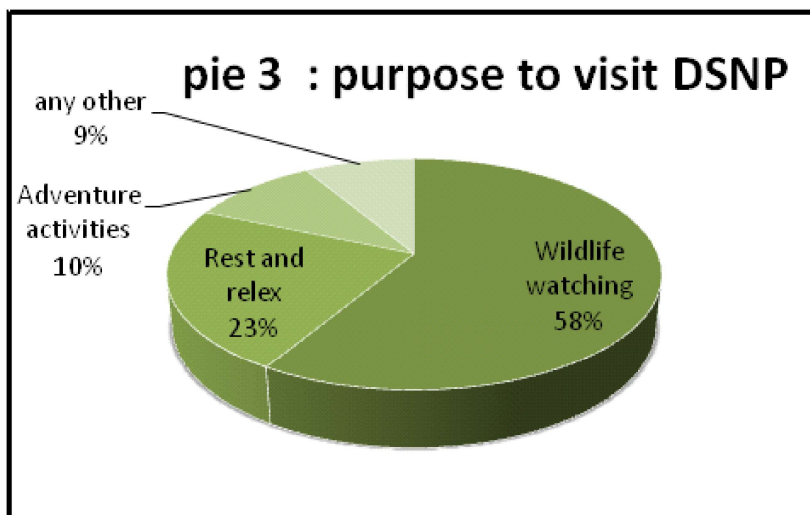
pie 2 : Transport System



The pie chart 2, showing the transport system used by visitors such as hired transport, self owned transport, public transport and other transport. According to chart 77% of people use hired transport, 16% people use self-owned transport, 6% people use public transport and a smaller part that is 1% of people use any other transport system to visit Dibru Saikhowa National Park.

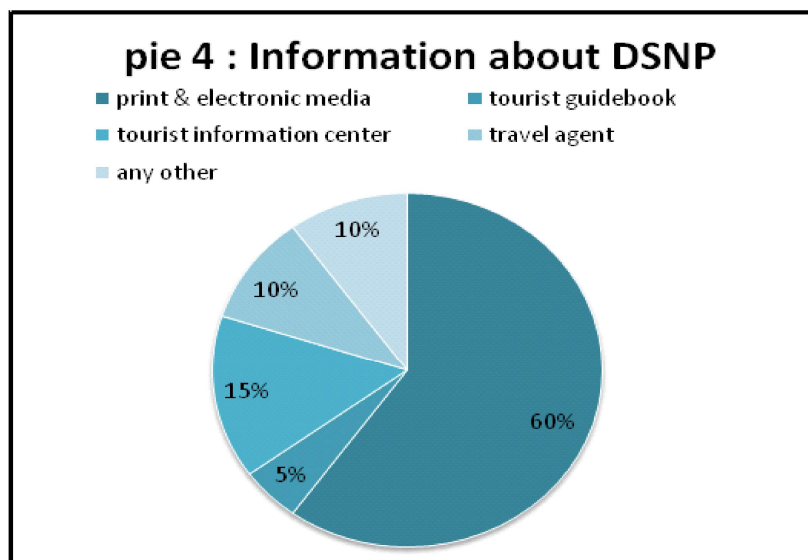


◆ **Purpose to visit Dibru-Saikhowa National Park**



The pie chart 3 showing, what is the purpose to visit Dibru Saikhowa National Park such as, wildlife watching, rest and relax, adventure activities, any other etc. According to the chart 58% of people or visitors, visits DSNP to wildlife watching, 23% of people visits DSNP for rest and relax, 10% of people interested about adventure activities and therefore they visit DSNP for adventure activities, and rest of them that is 9% of people visits DSNP for any other activities.

◆ **How to get information about Dibru-Saikhowa National Park**



The pie chart 4 showing, where did visitors get information about Dibru Saikhowa National Park such as, print & electronic media, travel agent, tourist guidebook etc. According to the chart, 60% of people get informed by print and electronic media like - instagram, facebook, twitter etc. and 15% of people get informed by tourist information center, 5% of people are informed by tourist guidebook, 10% of people are informed by travel agent and rest of them i.e, 10% people are informed about Dibru Saikhowa National Park by any other sources. This shows us the importance of social media.



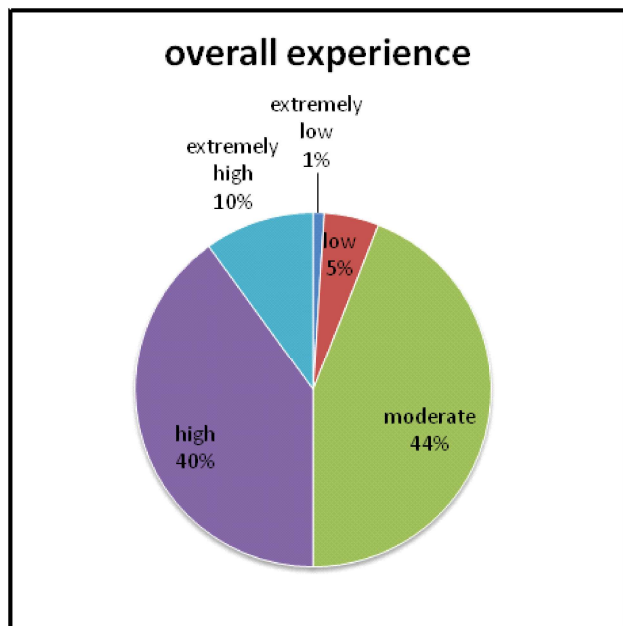
- Review (by number of person and percentage) :

(Total 12 Questionnaire)

SL no	Factors	Review (number of person)				
		1 ★	2 ★	3 ★	4 ★	5 ★
01	Information on the park	-	1	9	1	1
02	Accessibility	-	1	10	-	1
03	Availability of quality public transport	1	-	8	3	-
04	Quality of Infrastructure	-	4	7	1	-
05	Variety of food & beverages	-	4	7	1	-
06	Level of hygiene and sanitation	-	1	7	3	1
07	Travel services	-	2	6	4	-
08	Banking facilities	-	4	4	4	-
09	Shopping & availability of daily needs	-	5	7	-	-
10	Communication facilities	-	2	8	2	-
11	Medical facilities	1	1	8	2	-
12	Scenic Beauty	-	2	4	2	4
13	Wildlife safari	-	1	3	7	1
14	Bird watching	-	-	4	5	3
15	Adventure activities	-	1	7	3	1
16	Safety and security	1	-	6	5	
17	Value for money	1	-	8	3	-



◆ Overall experience about the park :



FLORA : The forest of Dibru-Saikhowa consists of semi-evergreen forests, deciduous, littoral and swamp forests and patches of wet evergreen forests. The national park is about 35.84% moist mixed forest, 9.50% degraded forest and 21.25% grassland. Major tree species of the area are tetrasperma, Dillenia indica, Bischofia javanica, Bombax ceiba, Lagerstroemia parviflora, Terminalia myriocarpa, Mesua ferrea, Dalbergia sissoo, and Ficus. Arundo donax, Imperata cylindrica, Phragmites karka, Saccharum ravennae are principal types of grasses in the national park. 35 species of epiphytic orchids and 8 species of terrestrial orchid are recorded.

FAUNA : Mammals: 36 mammal species have been recorded, of which 12 are listed in Schedule 1 of the Wildlife (Protection) Act of 1972.[7] Species include Bengal tiger, Indian leopard, clouded leopard, jungle cat, sloth bear, dhole, small Indian civet, Malayan giant squirrel, Chinese pangolin, Ganges dolphin, slow loris, pig tailed macaque, Assamese macaque, rhesus macaque, capped langur, Hoolock gibbon, Asian elephant, wild boar, Sambar deer, hog deer, barking deer, Asiatic water buffalo,[8] and feral horse.[9] The park is one of the few places in the world which is

home to feral horses. They are descendants of horses who bolted out of stables set up by the British Army in and around Tinsukia during World War II.

7. CONCLUSION :

Ecotourism is based on four principles nature orientation, eco sustainability, possibility of conducting research and involvement of local people. Modern tourism may take different forms including adventure, health, trade fair, cultural and religious festivals. Among those ecotourism blends a different strategy of enjoying the nature's serenity of its own way. Considering the wide geographical and biological diversity, the scope of ecotourism in Dibru-Saikhowa National Park is very high. If these resources are tapped successfully we can transform the face of tourism industry in Assam. What actually needed is careful planning and a target oriented approach. It is hoped that with the positive approach of the Central Government, State Government, Panchayat Samities, Non Government Organizations and local people; constructive efforts will be made in promoting ecotourism. The time has come when we must concentrate on the potential of ecotourism in Assam. Government as well as private sector needs to perform much better in this regard in the years to come. It is suggested that if government pays more attention towards ecotourism development, it may prove to be the backbone of the economy of Assam as well as India.

The study mainly aims to find the scope of eco-tourism in Dibru-Saikhowa National Park, and to find out the development potentialities of this park. From the findings presented above it can be concluded that there is a large potential for eco-tourism in Dibru-Saikhowa National Park which is yet not realized. In the National Park network can be built up to facilitate an effective conservation of the natural resources thereby providing the employment avenues for the local communities living close by using the prospects of the eco-tourism at a local level. The major eco-tourism activities that are practiced in Dibru-Saikhowa National Park are bird-watching. flood



tourism, eco-camps, watching river dolphin, flora discovering, rural tourism among others. From the study it is quite clear that there is immense potentiality of Eco-tourism in Dibru-Saikhowa National Park.

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Autonomy Movement in Northeast India

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ABSTRACT :

Soon after independence, India's Northeast region was swamped in a series of conflicts. Among the various tribes Nagas of Nagaland develop a sense of nationalist consciousness to establish their self-determination and freedom. Due to hegemonic role of the Indian state, they have been consistently urging their so-called demand of 'Nagalim' or 'Greater Nagaland'. The Bodo resurgence of Assam, their sub-nationalist aspirations and struggle for separate identity. The demand for a separate state 'Bodoland' in a peaceful manner soon turned violent. Communities living in Meghalaya appear to be homogenous ones. In reality, however, they are socially, politically and culturally not only heterogeneous but are also defined by distinct tribal and clan makers. Three major tribes—the Khasi, the Garo and the Jaintia, dominate the state. Each of them had own kingdoms until they were bought under the British colonial administration in the 19th century. Consequently, after independence, these tribes and their territories were merged with undivided Assam, and then carved out as a full-fledged state of Meghalaya in 1972. The autonomy demand of the Hmar people in Mizoram has been over 30 years. Following the signing of the Mizo Peace Accord in 1986, the Hmar tribes spearheaded their movement demanding creation of Autonomous District Council (ADC) for them in the north-eastern fringes of Mizoram State. The Tripura Merger Agreement in 1949 and as a result of the agreement Tripura joined the Indian union on certain conditions. After the joining of Tripura to the union a new beginning regarding the nature of

state politics came to light in the form of 'Autonomy Movement' for ensuring the rights of the aboriginal people.

INTRODUCTION :

Autonomy movements are among the most important themes of political, academic and popular discourse on Northeast India. Derived from the Greek word 'auto' meaning 'self' and 'nomo' meaning 'law' or 'rule' autonomy means 'self-rule' or to make one's own law. Therefore, it has the connotation of being free to govern oneself. It also means that one is independent to decide whether one wishes to be influenced or controlled by others or be free and rule oneself. From the political and legal aspect, autonomy connotes the ability of people to govern them or have the power to legislate to regulate their affairs. Autonomy movements are the collective mobilisation of people or groups that seek autonomy. Various ethnic groups in different states in different states in Northeast India have been seeking re-organisation of federal structure. Through re-organisation of federal relations, the ethnic groups seek to formulate and execute policies pertaining to their community and region. The focus of these movements have varied from re-organisation of federal structure from creation of new states from the existing state(s) or Union Territories to creation of autonomous district, regional or territorial councils. Some of these movements have demanded the creation of sovereign states.

OBJECTIVE :

1. To the history and the challenges faced.
2. To overcome the violence and maintain peace.



METHODOLOGY :

The data of the study on Autonomy Movement in Northeast India: Insurgencies and Challenges is collected from secondary sources like Journal, books, Articles and online sources.

Causes of Autonomy Movement in Northeast India :

The autonomy movements in Northeast India are driven by a complex mix of historical, political, ethnic and economic factors. Here are the key causes :

1. Historical and Colonial Legacy:

The British colonial administration merged or divided tribal regions without considering ethnic identities (e.g., through the Bengal Eastern Frontier Regulation, 1873). Exclusionary Policies: The Inner Line Permit system restricted movement, isolating tribal communities from main stream India. Post-Partition Disruptions: The partition of India (1947) and the creation of East Pakistan (now Bangladesh) cut off traditional trade and cultural links, exacerbating isolation.

2. Ethnic Identity and Tribal Distinctiveness:

The Northeast is home to over 200 ethnic groups, each with distinct languages, cultures, and traditions. Many tribes (e.g., Nagas, Mizos, Bodos) resisted assimilation into the Indian Union, fearing loss of identity. Migration from Bangladesh and other Indian states has fueled fears of cultural dilution, leading to movements like the Bodol and Gorkha land agitations.

3. Political and Administrative Neglect :

Many states (e.g. Nagaland, Meghalaya, Mizoram) were created only after prolonged struggles. Poor infrastructure, unemployment and lack of economic opportunities have fueled resentment. Heavy militarization through AFSPA (Armed Forces Special Powers Act) has violated human rights and also deepened alienation.

4. Economic Marginalization:

The region remains under developed despite rich natural resources. Geographic isolation (only an arrow 'Chicken's Neck' connects it to mainland India) hinders trade. Local communities of tense extraction (e.g. oil, timber) as benefiting outsiders,

not them.

5. External Influences:

Some groups received support from China, Myanmar or Bangladesh in the past. The spread of missionary influence in the states of Nagaland, Mizoram and Meghalaya has shaped separate identity movement.

Key Autonomy and Seccessionist Movements in Northeast India

Naga Movement :-

Naga National Council (NNC), later NSCN (National Socialist Council of Nagaland) has demanded greater autonomy or a separate Greater Nagalim including Naga - inhabited areas in neighbouring states and Myanmar. A ceasefire with NSCN -IM has been in place since 1997. Talks have been ongoing, but a final settlement remains elusive.

Mizo Movement :-

Due to the negligence by the Government of India and the Government of Assam during the 1959 famine occurred in the Mizo district, MNF (Mizo National Front) was formed under the Leadership of Laldenga. The main objectives behind the formation of the insurgent groups was to free Mizoram. After a long struggle, the Mizo Peace Accord was signed between the Government of India and the MNF in the year 1986. The Peace Accord led to the formation of the state of Mizoram.

Bodo Movement :-

The Bodos are an ethnolinguistic group primarily residing in western Assam (especially the districts of Kokrajhar, Baksa, Chirang and Udalguri). They are the largest indigenous tribes in Assam. The movement has evolved from demands for a separate state to autonomy within Assam, reflecting complex issues of identity, land, governance and cultural preservation. The Bodos felt politically marginalized and economically neglected after India's attained independence. The rise of Assamese nationalism and immigration from other parts of India and Bangladesh exacerbated tensions.



The All Bodo Students Union (ABSU) under the leadership of Upendra Nath Brahma began demanding a separate state of Bodoland in 1987. The slogan was Divide Assam "Fifty-Fifty" - calling for a separate Bodoland carved out of Assam. Later insurgent groups were formed namely Bodo Liberation Tigers (BLT) and National Democratic Front of Bodoland (NDFB). These insurgent groups demand separate statehood or independence for the protection of Bodo identity and expulsion of outsiders. The First Bodo Accord was signed in 1993 between the GOI and ABSU-BPAC that led to the creation of the Bodoland Autonomous Council (BAC). As the BAC lacked constitutional status, leading to dissatisfaction. The Second Bodo Accord was signed between the GOI and the BLT in the year 2003. This accord led to the establishment of Bodoland Territorial Council (BTC) under the sixth schedule. The Third Bodo Accord was again signed between the GOI, ABSU and NDFB in the year 2020 and renamed BTAD to Bodoland Territorial Region (BTR).

United Liberation Front of Assam (ULFA)

The United Liberation Front of Assam (ULFA) is a separatist insurgent group that emerged in Assam in 1979. It has been one of the most prominent militant organizations in Northeast India, advocating for a sovereign Assam and opposing what it sees as the exploitation of Assam's resources and cultural subjugation by the Indian state. The organization was formed on 7th April 1979 in Sibsagar, Assam. The founders of this organization are, Paresh Baruah, Arabinda Rajkhowa and Anup Chetia. The main aim of this organization was creation of Independent Assam (Swadhin Asom) through armed struggle.

CONCLUSION :

Northeast India has witnessed autonomy movements over the years since the 1940s. Autonomy movements are collective actions of people in a region who want reorganization of

federal relations to get autonomy to decide about the issues concerning them. In Northeast India, these state movements take different forms; insurgency aiming to get collective action for statehood or Union territory to be carved out of existing state or movement for getting autonomous district, regional or territorial councils. The movements arise because of the understanding among the leaders, activists and supporters of the autonomy movement that they have not been fairly treated in the existing federal structure in various aspects - social, cultural, economic and political. This is so despite the fact that there are constitutional provisions about the region to protect and preserve the identities of ethnic communities, traditional institutions and customary laws and institutions. Besides, all the Northeastern regions falling under the purview of the sixth Schedule enjoy special status entitled to tax rebates and other benefits. The opinion makers, especially the student leaders, politicians, intellectuals and civil society organisations in the region, understand that these provisions have not fulfilled their respective regions' expectations and aspirations. They are able to mobilise people into collective action or autonomy movements. On several occasions, these autonomy movements result in ethnic violence or violence between the state agencies (especially the central government institutions) and the people. Insurgencies in Naga and Mizo hills, in Manipur; Bodo movements in the plain areas of Assam; Karbi and Dimasas' autonomy movements in hills of Assam; and demand of district or territorial autonomies in other areas of Northeast India form some important examples of autonomy movement in the region.

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Act East Policy : Prospects and Challenges

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ABSTRACT :

This research dives into India's Act East Policy which began as the Look East Policy in the early 1990s under the Prime Ministership of Narasimha Rao and was later evolved by Prime Minister Narendra Modi in 2014. The main aim of this policy is to build stronger and deeper ties with East and Southeast Asian countries like Myanmar, Singapore, Vietnam, and others through trade, culture, defense, and regional connectivity. The policy also takes concerns on developing India's Northeast region the gateway to Asia. This study tries to understand the India's current relations with ASEAN nations, the rise of the Asian Tigers, and how these countries affect India's growth especially the Northeast. However, it also discusses serious challenges including poor connectivity in the Northeast, insurgency, cross-border drug trafficking and China's fast growing influence in the region. Despite these difficulties, the Act East Policy rise as a hope for progress.

Key words : Asian Tigers, ASEAN, Act East Policy

INTRODUCTION :

The Look East Policy was a initiative adopted during the early nineties by the Narasimha Rao government of India, stands as a important essence of India's deliberate foreign policy aimed at Southeast Asia, a region known for its abundant resources and flourishing prospects. The Look East Policy was an significant Indian foreign policy strategy. The main idea was "Let's build stronger relationships with our East Asian neighbors like Japan, South Korea, Hongkong and ASEAN

countries like Thailand, Vietnam, Singapore, etc. in terms of trade, culture, security, and many more."

In 2014, this policy was evolved to the Act East Policy under the Prime Ministership of Narendra Modi, aiming at more proactive and action-oriented approach. Its center of attention was strategic partnerships, defense and regional connectivity, particularly involving India's northeastern states as a doorway to Southeast Asia. It aims to enhance India's economy, defense, social along with cultural sector.

OBJECTIVES :

1. To understand the current geopolitical scenario between India and ASEAN countries.
2. To analyse and examine the development of ASIAN TIGERS(Japan, Singapore, South Korea, Hongkong).
3. To understand how Asian countries will create impact on India(mainly north east).

METHODOLOGY :

The present study on India's Act east policy: Prospective and Challenges is basically qualitative in nature. The data is collected from secondary sources like books, Journal, Articles and internet sources etc.

ANALYZING AND EXPLANATION :

After the end of cold war, a global geopolitical rivalry between USA and Soviet Union and their respective allies. Back then India faces many challenges, one of the biggest was the collapse of USSR which has been India's closest trade and commerce partner as well as political ally. India



itself realized that it was time for a change and a new beginning. At that time, India was going through a major economic crisis and had to opening up its economy to the world, this is what we call economic liberalization. With this new beginning, India realized to build stronger ties with other fast-growing regions, especially in East and Southeast Asia with countries like Singapore, Thailand, Malaysia etc. So in 1991, under the Prime Ministership of P. V. Narasimha Rao, India launched the Look East Policy. The idea was simple, to improve relations with Southeast Asian countries in terms of trade, investment, culture, and security. It was also meant to help India become more active in regional politics and balance the growing influence of China and other big powers in the area.

The look east policy was a tragic shift in India's foreign policy. Over the years the policy helped India to build ties, partnerships and other relations with ASEAN nations. India built closer economic and political relations with countries like Thailand, Singapore etc. which helped in improving trade volume and diplomacy. Many connectivity projects had been taken into consideration such as the India-Myanmar-Thailand Highway, the Kaladan Multi-Modal Transit Transport Project (KMMTTP), and others were planned to improve road and sea connectivity. Cultural ties were made through tourism, education, and shared heritage mostly with countries like Indonesia, Myanmar, and Thailand. This policy helped India to increase its presence in the Indo-Pacific region and slowly neutralized China's growing power.

However, despite these achievements, the policy had several drawbacks and limitations. Progress was very slow, and many infrastructure and connectivity projects faced delays due to bureaucracy and lack of coordination among countries. While India was active, countries like China moved much faster to engage other regions in large-scale investments. Also, the northeastern states of India like Mizoram, Tripura, Assam etc. which were supposed to be benefited from improved regional links, remained

underdeveloped and disconnected from rest of the world.

The policy was seen as passive and inactive leading the government under the Prime Ministership of Narendra Modi to evolve it into the Act East Policy in 2014. This new perspective aimed to be more proactive and outcome-oriented, focusing on faster accomplishment, deeper and stronger partnerships and ties, and greater presence of India in East and Southeast Asian affairs. One of the key concern of the Act East Policy is to strengthen the economic, political, and cultural ties with ASEAN nations, as well as with countries like Japan, South Korea, Hongkong, and even Pacific Island nations such as Fiji, Samoa, Tonga etc. India has aimed to increase trade, investments, and collaborations on areas like technology, defense, maritime security, and connectivity. This policy also look forward to provide special attention on improving connectivity through communication and infrastructural concerns such as roads, railways, ports, and digital links, particularly engaging India's Northeast region, which acts as the doorway to Southeast Asia. The Act East Policy has brought a sense of new beginning, aspirants and opportunity to India's Northeastern regions, which for a long time considered to be isolated and underdeveloped. By making the Northeast the main doorway for connecting India with rest of the Southeast Asian countries, the policy helped to bring more attention, investment, and development to this region of the country. Roads, bridges, and other infrastructure projects have been launched to improve connectivity, not just within the region, but also with neighbouring countries like Myanmar and Thailand. This means better transport, easier trade, and more chances for local businesses to grow helping people to wide up there businesses, goals and opportunities. This policy also encouraged cultural exchanges and tourism, emphasizing on the rich heritage of the Northeast and how it links with Southeast Asian cultures. Most importantly, it has given people in the region a feeling of being more connected to the rest of India and the world. This policy isn't just about



boosting trade and cultural exchange it also plays a significant role in technology and defence collaboration for collective growth. Through this policy, India has been working closely with countries like Vietnam, Japan, and Indonesia, as a strategic partners aiming for regional peace and progress. For instance, India's support in training Vietnamese naval personnel and offering defence machineries like patrol vessels reflects a meaningful trust building bond beyond transactions. With Japan, collaborations in areas like robotics, Artificial Intelligence and cyber security show how technology can be a bridge for innovation and shared security. Joint military exercises with ASEAN nations aren't just sharing but it symbolize unity and a commitment to safeguarding shared values and security. In this way, the Act East Policy goes beyond diplomacy, it's about connecting people, sharing knowledge, and building a future together through cooperation in technology and defence.

CHALLENGES :

The Act East Policy, with many aims and goals, faces real geographical challenges that make development slower and more complex, especially in Northeast India. The region is beautiful but uneven, filled with hills, dense forests, and rivers that often flood. Building roads, railways, or communication lines here isn't that easy, it takes time, labour, and a lot of resources. The Northeast is also connected to the rest of India by just a narrow stretch of land, the "Siliguri Corridor" which makes travelling risky and limited. Bordering several countries like Myanmar, China, and Bangladesh, the area faces many border issues that affect progress. The remote villages scattered across high terrains, makes clear why connectivity and steady development here is a real challenge. Still, every step ahead, every bridge built or road completed, it feels like a hopeful move towards connecting people, cultures, and economies more closely across the region.

Terrorism and insurgency have emerged as a serious challenge to the Act East Policy, especially in the Northeast India. For decades, due to

geographical challenges the area felt disconnected from the rest of the country, leading to disturbance and calls for autonomy or separation. Till date much progress has been made but insurgency still remain, making it difficult to build trust, attract investment, or carry out large infrastructure projects safely. Workers and officials face threats and death warnings. For the people living in these areas, it's not just about policies or progress but it's more about feeling secure in their homes and hopeful for the future. Until peace becomes a permanent part of daily life, the full potential of the Act East Policy to connect and uplift these communities will remain just out of reach.

Northeast share 1395km with china in north 1600 km with Myanmar in east and 1596 with Bangladesh in South west. According to Drug trafficking and national security Myanmar is the second largest "opium" producer of the world after Afghanistan and Northeast is also in the road between the Golden triangle and Golden Crescent, which enhance the drug supply in the Northeast, through the Moreh (drug capital of India), which led societal hazard and violence and destroy our future generation and break the backbone of the nation .According to NCB (Narcotics Control Bureau) these drug, heroin and methamphetamine producing area have border with easy movement (Arakan mountain) are reportedly, under the control of the rebel groups , indirectly supported by the Chinese. The illegal arms supply by the Chinese through the same route can't be ignore which led the increase in insurgence groups and rebel groups. Manipur violence, Arms Ambush by militants, illegal arms markets in border area are few consequences China's growing presence in Southeast Asia and along India's borders has quietly become a major challenge for the success of the policy. While India is trying to build trust, peace and trade with its eastern neighbors, China is already deeply involved in these regions with massive investments, infrastructure projects, and strong political ties. For countries like Myanmar, Laos, or even Bangladesh, China often comes with quicker funding with fewer conditions, making India's outreach seem slower or less attractive in



comparison. China's influence near India's borders, especially in Arunachal Pradesh and along the India-Myanmar border, creates tension. It opposes the development projects between India and its eastern nations resulting in delays with projects and initiatives.

FINDINGS :

India's Look East Policy, launched in 1991, focused on strengthening economic and political ties with Southeast Asia. In 2014, it evolved into the Act East Policy under Prime Minister Modi, adopting a more proactive approach. The policy emphasized regional connectivity through projects like the India-Myanmar-Thailand Trilateral Highway and the Kaladan Multi-Modal Project to integrate India's Northeast with ASEAN nations. It also strengthened defense partnerships with countries such as Vietnam and Japan, and promoted cultural diplomacy through tourism and education. However, implementation faced challenges including delays, funding issues, and bureaucratic hurdles. Despite this, the policy boosted India's presence in the Indo-Pacific.

CONCLUSION :

In summation the act east policy is more than a development initiative. It's a journey of reconnecting hearts, cultures and community across Asia. As India looks east, not only with diplomacy, but with empathy too for building a future rooted in mutual respect, human dignity, and collective prosperity and development.

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TIPAM

A HISTORICAL PERSPECTIVE

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ABSTRACT :

This research paper explores Tipam, the first capital of the Ahom Kingdom, established by the Tai prince Sukapha in 1228 CE. Tipam's strategic geographical location, cultural integration, and administrative importance laid the foundation for the six-century-long Ahom rule in Assam. This paper discusses the reasons behind Sukapha's choice of Tipam, its role in the political and cultural assimilation of the Ahoms with indigenous communities, and its legacy in the historical consciousness of Assam. The methodology includes historical textual analysis and references to primary and secondary sources. The research reveals that Tipam, though short-lived as a capital, was crucial in shaping the early Ahom administrative framework and intercultural relations.

Keywords: Ahom Kingdom, Tipam, Sukapha, Assam History

INTRODUCTION :

The Ahom Kingdom, founded in the 13th century, is one of the longest-reigning dynasties in Indian history. It was established by Sukapha, a Tai prince from Mong Mao, who migrated with a contingent of followers into the Brahmaputra Valley. The selection of Tipam as the first capital marked a critical moment in the establishment of the Ahom polity in Assam. This paper aims to understand Tipam's strategic and historical relevance and to evaluate its role in shaping early Ahom governance and cultural integration. The paper is structured first to highlight Sukapha's arrival at Tipam and then assess Tipam's geographical and political suitability.

Existing scholarship on the Ahom Kingdom has focused significantly on later capitals like

Charaideo and Sivasagar. However, works by E.A. Gait (1906), S.K. Bhuyan, and S.L. Baruah recognize Tipam as a critical but understudied phase of Ahom history. Gait discusses Tipam's geographical advantage and early interactions with indigenous tribes, while Bhuyan highlights Tipam's role in cultural assimilation. However, there remains a lack of detailed research specifically focusing on Tipam as an administrative center.

This research adopts a qualitative historical approach, utilizing both primary and secondary sources. Key texts include historical chronicles such as the Buranjis, E.A. Gait's 'A History of Assam,' and S.L. Baruah's comprehensive accounts. Secondary analysis includes cultural studies on the Tai-Ahom community. The paper also considers oral traditions and localized historical accounts relevant to Tipam's legacy.

Advent of Ahoms at Tipam

The region of Tipam occupies an important place in the early history of the Ahom Kingdom's establishment in Assam. In 1228 CE, Sukapha, a Tai prince from Mong Mao (in present-day Yunnan, China), entered the Brahmaputra Valley via the Patkai Hills with a band of followers. (Baruah, 1985). After crossing the rugged terrain, he reached the Tipam hills, located in the eastern part of Assam (modern-day Dibrugarh district). Tipam was one of the first significant halting points in the Ahom migration and served as a strategic site for early settlement and assessment of the region.

At Tipam, Sukapha began establishing relations with the local tribal communities, especially the Morans and the Barahis. He adopted



a policy of peaceful assimilation through diplomacy, cultural exchange, and intermarriage, which earned him the trust and support of the indigenous population. This phase at Tipam was crucial for understanding the socio-political landscape of the Brahmaputra Valley and planning further expansion.

The terrain around Tipam, with its fertile land and forest resources, provided initial sustenance to the migrants. Sukaphaa used this time to consolidate his forces and learn about agricultural practices suitable for the region. After spending several years at Tipam, he moved westward and eventually established his capital at Charaideo in 1253 CE, marking the formal beginning of the Ahom kingdom (Baruah, 1985).

Although Tipam was not a permanent capital, it played a vital transitional role in the Ahom migration and state formation process. It laid the foundation for Sukaphaa's strategy of gradual integration and territorial expansion. In historical narratives, Tipam symbolizes the starting point of the Ahom political and cultural presence in Assam.

Significance of Tipam

The significance of Tipam lies in its foundational role. It was a testing ground for Sukapha's leadership style and political strategy. Unlike aggressive conquerors, he adopted diplomacy, forged alliances, and respected local traditions. This approach enabled long-term stability and set a precedent for future Ahom rulers. Tipam also witnessed the early blending of Tai-Ahom and local Assamese culture. Language, dress, agriculture, and religious practices evolved through this interaction. The Ahoms introduced plough-based rice farming, which transformed local economies. While Charaideo later became the spiritual center, Tipam remained symbolically important. It reflects a rare example of state formation through integration rather than domination.

Tipam also witnessed the early blending of Tai-Ahom and local Assamese culture. Language, dress, agriculture, and religious practices evolved through this interaction. The Ahoms introduced plough-based rice farming, which transformed local economies. While Charaideo later became the spiritual center, Tipam remained symbolically important. It reflects

a rare example of state formation through integration rather than domination.

In summary, Tipam was selected for its defensibility, proximity to rivers and hills, and fertile lands suitable for wet rice cultivation. Sukapha implemented an early form of administrative structure and established alliances with local tribes like the Morans and Borahis. Cultural synthesis began at Tipam, integrating Tai customs with Assamese traditions. Although Tipam's period as capital was short, it served as the launching pad for the Ahom state-building process.

CONCLUSION :

Tipam's legacy in Ahom history is profound. As the first capital, it provided the groundwork for the Ahoms to establish themselves in Assam. Sukapha's strategic and inclusive leadership at Tipam ensured that the Ahoms were not seen as invaders but as contributors to Assam's cultural and political landscape. The paper concludes that Tipam's historical importance lies not in its duration as a capital but in its impact on the trajectory of Ahom rule.

Future research could explore archaeological excavations around Tipam and conduct comparative studies with other early capitals in Indian history.

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Socio-Economic Impact of National Park On Local Communities : A Case Study of Dibru-Saikhowa National Park, Assam, India

Submitted By -

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INTRODUCTION :

Socio-economic impact of Dibru-Saikhowa National Park on local communities has been profound, as tourism and conservation activities in the region have brought both opportunities and challenges for the people living near the park. Situated in Assam, India, Dibru-Saikhowa is a biodiversity-rich area that attracts visitors from all over the world, driven by its unique wildlife, scenic landscapes, and ecological importance. While tourism has provided the local communities with economic benefits such as job creation, business growth and improved infrastructure, it has also led to concerns regarding environmental degradation, cultural changes and socio-economic disparities. This project aims to investigate the socio-economic impact of Dibru-Saikhowa National Park on the local communities, focusing on the multifaceted ways in which conservation efforts intersect with the everyday lives of people living near the park. Specifically, the study will explore how the park has influenced local economies, including agriculture, fishing and tourism, while also considering the challenges faced by the communities, such as restricted access to natural resources and land. Additionally, the research will examine the role of the park in shaping local





perceptions of environmental conservation, culture identity and sustainable development. By assessing both positive and negative impacts of the park, this project seeks to contribute valuable insight into the balance between environmental protection and the socio-economic well-being of indigenous and local populations, offering policy recommendations for fostering more inclusive and sustainable conservation practices.

2. REVIEW OF LITERATURE:

Graham C. Barrow (05/September, 2019) in his research paper "The Potential Socio-Economic Impacts of New National Park for Galloway", states the status of old aged population of Galloway and reveals the opportunities of various new jobs, businesses, sustainable development of that area by establishing a new national park at Galloway. His report represents the views of the author and this paper is an edited version of an earlier document prepared in 2017 for the Galloway National Park Association.

Eric Djomo Nana & Norbert Ngameni Tchamadeu (2014) in their research paper "SOCIO-ECONOMIC IMPACTS OF PROTECTED AREAS ON PEOPLE LIVING CLOSE TO THE MOUNT CAMEROON NATIONAL PARK", they highlight the problems encountered by local population living near Mount Cameroon National Park, Cameroon.

Kumar.V. (2009) in his research paper "Impact of Ecotourism on Visitors and Villagers in Satpura national park, Madhya Pradesh". Assessed the impact of Ecotourism on visitors in terms of its extended effects favouring forest and the

environment and the local villagers in Satpura National Park regarding various parameters like the standard of living, food intake expenditure, cultural activities. Etc.

Beatrice Simon Moshi (July 2016) in his research paper "Impact of Protected Areas on Local Livelihood : A case study of Saadani National Park". He highlights the problem of local livelihood near by Saadani National Park. Saadani National Park supports biodiversity conservation but restricts local resources access, causing livelihood challenges like displacement and conflict.

Bernadetta Zawlinska & Mirosław Mika (May 2013) in their article "National Parks and Local Development in Poland : A Municipal Perspective" examines how local authorities perceive national parks as either catalysts or obstacles to local development in Poland. The study involved surveys conducted among representative of 61 municipalities containing national park areas.

3. OBJECTIVE OF THE STUDY :

- ◆ To study the socio-economic impact characteristic of sample population.
- ◆ To study the impact of Dibru-Saikhowa National Park on the livelihood of local communities.

4. STUDY AREA :

Dibru-Saikhowa National Park is located in the northeastern state of Assam, India, specially in the Tinsukia district. It covers an area of approximately 340 square kilometers and is situated between the Brahmaputra River and the Dibru River. Maguri-Motapung Beel is the part of the Dibru-Saikhowa National Park. It lies on the southern boundary of the park and is an important wetland area within the Dibru-Saikhowa Wildlife Sanctuary. The word 'Beel' in Assamese means lake, and Maguri is the local name for a type of catfish. Ironically, a steep rise in fishing has led to the extinction of Maguri in the lake. The wetland, spread over an area of 9.6 square



kilometers, was declared an Important Bird and Biodiversity Area (IBA) in 1996. The lake supports approximately 110 species of birds and large human population, most of whom depend on fishing for a livelihood. The only mode of transport here is the wafer-thin fishing boats. At Maguri Beel, wintering migratory birds start appearing during November and continue well into next year till April. Some of the highlights from the grasslands are Jerdon's Babbler, Chestnut-capped Babbler and the highly sought-after Marsh Babbler and Black-breasted Parrot bill. As winter chills descend upon the Himalayas, Maguri Beel transforms into a bustling sanctuary. This period, roughly from November to March, witnesses a spectacular influx of migratory birds. While the migratory influx steals the show during winter, Maguri Beel boasts a resident bird population equally captivating. The wetland resonates with the calls of waders like the Little and Common Greenshank, the Black-winged Stilt, and the ornately patterned Painted Snipe. Birders with a keen eye can spot elusive beauties like the shy Brown Cuckoo, perfectly camouflaged amongst the lush vegetation. For those seeking a vibrant splash of colour, the Indian Roller, with its turquoise plumage and acrobatic displays, is a delight to witness.

5. DATABASE AND METHODOLOGY :

This study is based on both primary and secondary data. Secondary data are collected from various books, research papers, journal articles etc. for primary study a sample of 14 respondents was collected randomly from the study area. The sample population was categorised into various categories like age, gender, level of education, income generation, monthly expenditure, infrastructure development, standard of living and employment opportunities. Some statistical tools like arithmetic mean, median have been used for data analysis and results are represented with the help of pie chart, table etc.

6. ANALYSIS :

The Profile of the Respondents is sketched out from Table 1 to 4.

Table -1 : Age Group of the sample population

Years	N	Percentage(%)	Male	Female
20 - 30	2	14.0	2	0
30 - 40	5	36.0	2	3
40 - 50	5	36.0	3	2
50 - 60	2	14.0	1	1
Total	14	100.0	8	6



Table-2 : Gender of the sample population

Gender	N	Percentage(%)
Male	8	57.0
Female	6	43.0
Total	14	100.0

Table sample consisted of 57% of male respondents and 43% female of which 14% are in the 20 to 30 years age group; 36% are 30 to 40% years; 36% are 40 to 50 years and 14% are 50 to 60 years.

Table-3 : Education level of sample population

Level	N	Percentage(%)
Up to 10th	11	79.0
Up to 12th	1	7.0
Graduate	1	7.0
Post Graduate	1	7.0
Total	14	100.0

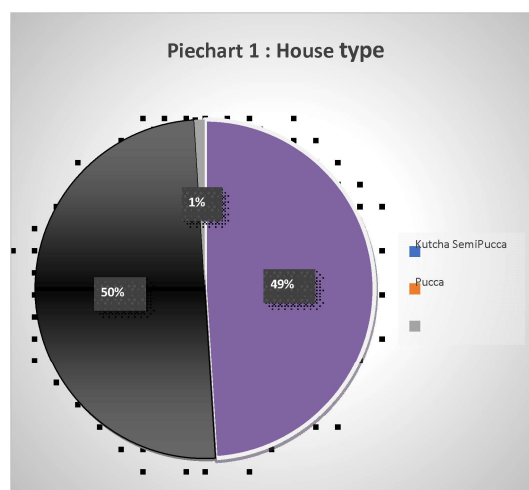
Table-4 : Occupation of the sample population

Occupation	N	Percentage(%)
Self-employed	9	64.0
Employed	1	7.0
Unemployed	4	29.0
Total	14	100.0

The Education Level and Occupation of the respondents have been tabulated in Table 3&4 which reveals that out of the total 14 respondents, eleven have completed their matriculate, one was 12th pass, one was Graduate and one Post Graduate. The respondents belong to different occupations. Nine of them were self-employed, one was employed in tertiary sector and four were unemployed.

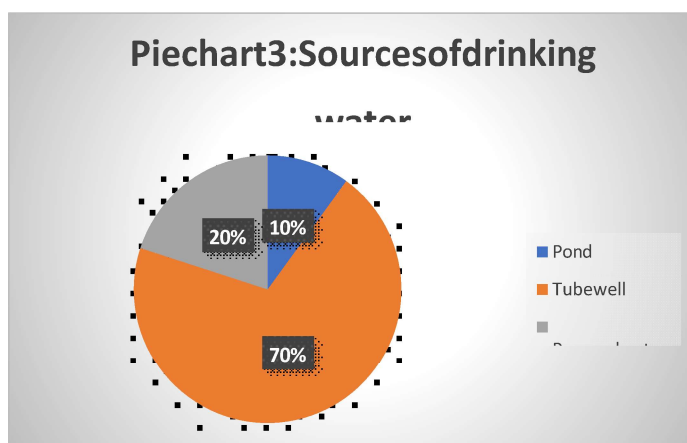
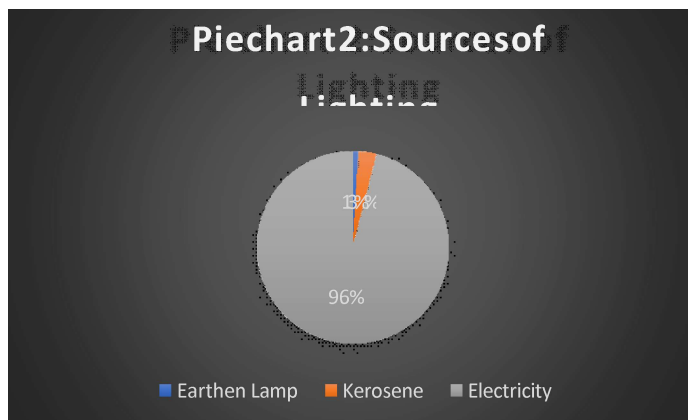
◆ **Livelihood of local people near Dibru-Saikhowa National Park -**

The pie chart 1, showing the distribution of housing types near Dibru-Saikhowa National Park highlights the living conditions of the local communities in the area. According to the chart 49% of people live in kutchha house, 50% of people live in semi-pucca houses and 1% of people live in pucca house.



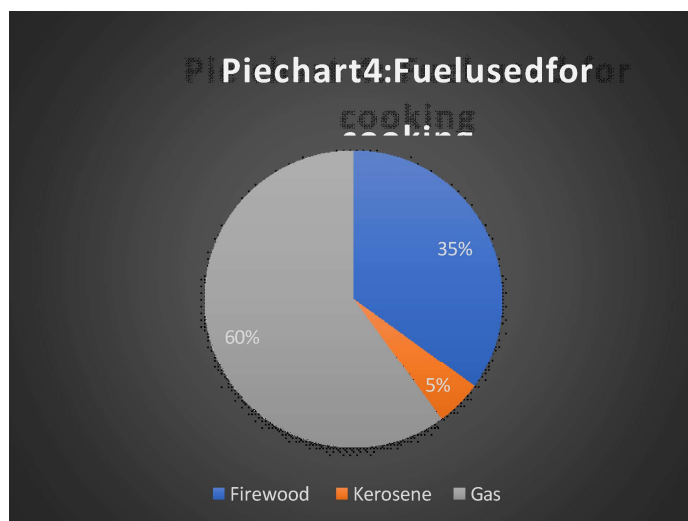


The pie chart 2 showing the sources of lighting for local communities near Dibru-Saikhowa National Park illustrates the predominant means of lighting used by these population. The chart highlights that 1% people use earthen lamps, 3% use kerosene and 96% of people use electricity for source of lighting.



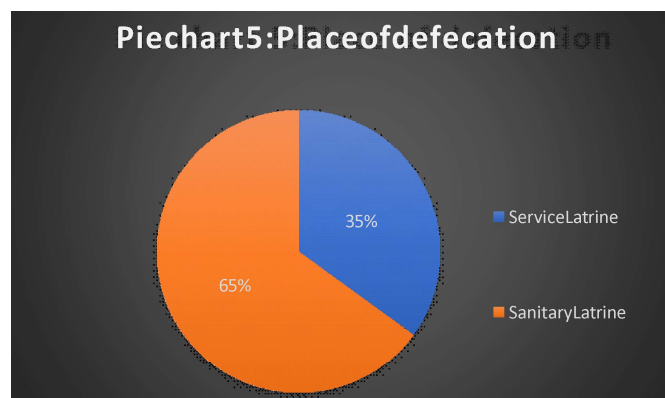
The pie chart 3 showing the sources of drinking water for local communities near Dibru-Saikhowa National Park. According to the chart 10% of people use pond, 70% of people use tubewell and 20% of people use pumped water for their daily purposes.

The pie chart 4 shows that 60% of the local communities near Dibru-Saikhowa National Park rely on gas as their primary cooking fuel, reflecting access to modern, cleaner energy sources. 35% of the population still uses firewood, which is a more traditional and wide spread fuel in rural areas, while 5% of use kerosene, indicating a smaller portion still relies on less efficient and potentially harmful fuels. This distribution highlights a combination of traditional and modern energy sources, with gas becoming the dominant choice for cooking in the area.





The pie chart 5 reveals that 65% of the local populations near Dibru-Saikhowa National Park use sanitary latrines, reflecting access to private, hygienic, 35% still use service latrines, which are shared and may not offer the same level of privacy or hygiene as sanitary latrines.



◆ **Impact of Dibru-Saikhowa National Park on local communities :**

The Dibru-Saikhowa National Park has had both positive and negative impact on local communities.

POSITIVE IMPACTS :

1. Tourism Opportunities :-

With the park's natural beauty and biodiversity, local people have found opportunities in tourism-related business. Many have become guides, running homestays and offering boat rides, helping to generate income. This has created jobs for local families and provided a platform for local entrepreneurs to establish small businesses like food stalls and souvenir shops.

2. Improved Infrastructure :-

The growth of tourism and conservation efforts has led to improvements in infrastructure, such as better roads, electricity, and communication networks, benefiting the entire community. These improvements have enhanced daily life and also facilitated access to markets, healthcare and education.

3. Conservation Efforts :-

In some cases, local people have been involved in conservation programs, which can provide employment and a sense of responsibility for preserving their natural surroundings. This can foster a sustainable way of interacting with the environment.

NEGATIVE IMPACTS :

1. Restrictions on Resources :-

The creation of the national park has led to restrictions on the use of certain natural resources.

Local communities, particularly those who relied on fishing, hunting, or gathering forest products for sustenance and income, have found their livelihoods constrained. This has created tensions between conservation goals and the need for local people to access these resources for survival.

2. Displacement and Loss of Land :-

In some cases, the expansion of the park has led to displacement of local people, affecting their land rights and access to agricultural land. This has disrupted traditional farming practices and forced some families to adapt to new ways of earning a living.

3. Tourism Impact on Local Culture :-

While tourism brings economic benefits, it can also lead to the erosion of local traditions and culture, as some locals may alter their way of life to cater to tourist demands. Additionally, overcrowding and uncontrolled tourism can put pressure on local infrastructure and resources, which may negatively affect daily life.

While the Dibru-Saikhowa National Park has brought economic opportunities through tourism and infrastructure development, it has also created challenges for local communities in terms of resources access, land use and cultural preservation. A more balanced and inclusive approach to conservation and tourism development would be essential to ensure that local livelihoods are both protected and enhanced. As local residents of Dibru-Saikhowa, some of their families are indeed involved with the park in various ways, though the level of involvement and earnings vary. In terms of earnings, the amount



varies widely depending on the type of involvement. For those working as guides or in tourism-related businesses, the annual income can range from a modest sum to a more substantial amount, depending on the number of visitors to the park each year. On average, earnings can range anywhere from a few thousand to several tens of thousands of rupees annually. However, local people has mixed feeling about the further growth of tourism in their area. On the other hand, they recognize that tourism can bring economic benefits, such as job creation, increased business opportunities, and better infrastructure etc. They feel that park authority has not sufficiently involved them in the decision-making process. But they understand the importance of managing the park for conservation and tourism, it is essential that their voices are heard, as they are the ones who live here and have a deep connection with land.

7. CONCLUSION :

In conclusion, the socio-economic impact of Dibru-Saikhowa National Park on the local communities is multifaceted, presenting both opportunities and challenges. On the one hand, the park plays a significant role in preserving biodiversity, which is essential for sustaining the local environment and tourism. The influx of tourists generates revenue, providing livelihood opportunities for local residents through ecotourism, hospitality, and related services. Additionally, conservation efforts can improve the quality of natural resources that local community rely on, such as water and forest products.

However, the park's conservation policies can

also pose challenges. Restrictions on access to natural resources and land-use changes may disrupt the livelihoods of local communities, particularly those dependent on traditional agriculture, fishing, and gathering. Tensions between conservation goals and the economic needs of the local population can lead to conflicts. Therefore, it is crucial for policies to be developed with the active involvement of local communities, ensuring that both conservation and socio-economic needs are balanced for the long-term benefit of all stakeholders.

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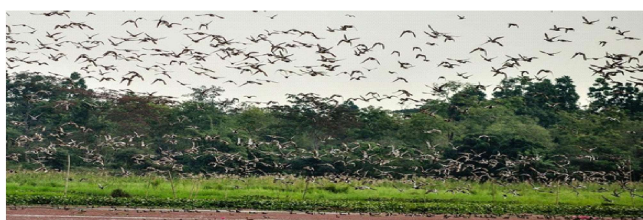
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Some glimpse of local people living in Dibru-Saikhowa National Park





গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তোলাত দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰৰ ভূমিকা

প্ৰস্তুতকৰ্তা :

লাকী গগৈ, গুলাইনা কোঁৱৰ, দৃষ্টি মুখাৰ্জী
৫ম ষাণ্মাষিক, অসমীয়া বিভাগ

১.০ অবতৰণিকা

দুলীয়াজান মহাবিদ্যালয়খন ১৯৬৯ চনৰ ৰ আগষ্ট স্থাপন কৰা হৈছিল। এই মহাবিদ্যালয়খন ডিব্ৰুগড় বিশ্ববিদ্যালয়ৰ অন্তৰ্ভুক্ত। মহাবিদ্যালয়খনত বিজ্ঞান, কলা আৰু বাণিজ্য বিষয়ত শিক্ষাদান কৰা হয়। ইয়াত মুঠ ১৭ টা বিভাগ আছে আৰু ইয়াত বৰ্তমানত প্ৰায় ২০০০ তকৈ অধিক ছাত্ৰ-ছাত্ৰীয়ে শিক্ষা গ্ৰহণ কৰি আছে। এই মহাবিদ্যালয়ত এটা গ্ৰন্থাগাৰ আছে যিয়ে বৰ্তমান সময়ত ছাত্ৰ-ছাত্ৰীৰ শৈক্ষিক দিশসমূহক আগত ৰাখি বিভিন্ন অধ্যয়নমূলক প্ৰদৰ্শন গ্ৰহণ কৰি আহিছে। মহাবিদ্যালয়খনত শিক্ষা লাভ কৰি বহুতো ছাত্ৰ-ছাত্ৰীয়ে বিদেশত উচ্চপদবী দখল কৰি মহাবিদ্যালয়ৰ লগতে শিক্ষা গুৰুসকলৰ বাবেও গৌৰৱ কঢ়িয়াই আনিছে। ইয়াত সময়ে সময়ে ছাত্ৰ-ছাত্ৰীৰ সা-সুবিধাৰ প্ৰতি লক্ষ্য ৰাখি স্থানীয় শিক্ষামূলক ভ্ৰমণ আলোচনা-চক্ৰ আদি অনুষ্ঠিত কৰি অহা হৈছে। বিগত কেইটামান বৰ্ষৰ আৰম্ভণিৰে পৰা দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰৰ ভূমিকাক আলোচনাৰ বিষয় ৰূপে বাচি লোৱা হৈছে। এই মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰৰ ভূমিকাক আৰু উন্নত কৰাৰ ক্ষেত্ৰত মহাবিদ্যালয়ৰ বৰ্তমান প্ৰধান অধ্যক্ষ ড° লোক বিকাশ গগৈৰ লগতে গ্ৰন্থাগাৰিক মন্দিৰা চুতীয়াই বিশেষ পদক্ষেপ হাতত লৈ আহিছে।

১.১ অধ্যয়নৰ উদ্দেশ্য :

দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তোলাত কেনে ধৰণৰ ভূমিকা গ্ৰহণ কৰিছে এই সম্পৰ্কে আলোচনা কৰাই এই আলোচনা পত্ৰৰ উদ্দেশ্য।

১.২ অধ্যয়নৰ পদ্ধতি আৰু পৰিসৰ :

গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তোলাৰ ক্ষেত্ৰত বিভিন্ন শিক্ষানুষ্ঠানে বিভিন্ন কাৰ্যসূচী গ্ৰহণ কৰিছে। তাৰে ভিতৰত দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে গ্ৰহণ কৰা কাৰ্যসূচী সমূহ আলোচনা কৰা হ'ব। আলোচনাটি কৰোঁতে বৰ্ণনাত্মক আৰু বিশ্লেষণাত্মক পদ্ধতি দুয়োটাকে অগ্ৰাধিকাৰ দিয়া হৈছে।

২.০ গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তোলাত দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰৰ ভূমিকা :

দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰটো প্ৰতিষ্ঠা হৈছিল ১৯৬৯ চনত। ২০২০ চনত D-space জৰিয়তে ডিজিটেল লাইব্ৰেৰী প্ৰতিষ্ঠানিক ভৰাঁল আৰম্ভ কৰা হয়। গ্ৰন্থাগাৰে আৰম্ভণিৰ পৰা বিভিন্ন কিতাপ আলোচনী বাতৰি কাকত, ই-সম্পদ, পাঠ্যপুথিৰ অন্তৰ্গত প্ৰসংগ পুথি আৰু অন্যান্য সেৱা সংগ্ৰহৰ দ্বাৰা পুথিভৰাঁল ব্যৱহাৰকাৰীসকলক সেৱা আগবঢ়াবলৈ চেষ্টা কৰি আহিছে। পুথিভৰাঁলটোত বিভিন্ন শিতান আছে, যেনে Circulation section, Digital Library, Internet Browsing section, Book Bank section, Competitive Exam Collection section, comparative exam section, best seller books section, institutional repository ইত্যাদি। পুথিভৰাঁলটোৱে INFLIBNET 1 N-List ই সম্পদ কাৰ্যসূচীৰ সৈতে সদস্যপদ পঞ্জীয়ন কৰে। ইয়াত ৩১,৩৫,০০০ ই-বুক আৰু ৬০০০ ই-জাৰ্নেল প্ৰদান কৰা হয়।

দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তুলিবৰ বাবে বিভিন্ন কাৰ্যকলাপ হাতত লৈছে।



বিগত কেইটামান বছৰ ধৰি গ্ৰন্থাগাৰে অনুষ্ঠিতি কৰা বিভিন্ন কাৰ্যসূচী সম্পৰ্কে তলত চমুকৈ আলোচনা কৰা হ'ল -

২.১ কাৰ্যকলাপসমূহ

২.১.১ গ্ৰন্থমেলা

গ্ৰন্থমেলা হৈছে সাধাৰণতে প্ৰকাশক বা গ্ৰন্থ ব্যৱসায়ীৰ এটা দলে বিক্ৰীৰ প্ৰসাৰ আৰু সকলো বয়সৰ লোকৰ মাজত পঢ়াৰ অভ্যাস গঢ়াৰ বাবে আগ্ৰহ জগাই তুলিবলৈ কিতাপৰ প্ৰদৰ্শন বা প্ৰদৰ্শনী। দুৰ্লীয়াজান মহাবিদ্যালয়ৰ পুথিভঁৰালৈ প্ৰতিটো শিক্ষাবৰ্ষতে এখন গ্ৰন্থমেলাৰ আয়োজন কৰে যাতে ছাত্ৰ-ছাত্ৰী, শিক্ষক-শিক্ষয়িত্ৰীৰ লগতে অন্যান্য গ্ৰন্থপ্ৰেমীসকলে প্ৰয়োজন অনুসৰি কিতাপ ক্ৰয় কৰিব পাৰে। ২০০৮ বৰ্ষৰ পৰা দুৰ্লীয়াজান মহাবিদ্যালয়ত গ্ৰন্থমেলা অনুষ্ঠিত কৰি অহা হৈছে। এই গ্ৰন্থমেলাত অসমৰ কেইবাটাও উল্লেখযোগ্য গ্ৰন্থ প্ৰকাশনে অংশ গ্ৰহণ কৰি আহিছে যত পাঠ্যক্ৰমৰ কিতাপৰ লগতে বহুতো মহৎ লোকৰ গ্ৰন্থৰ বিক্ৰীৰ বাবে ব্যৱস্থা কৰে।

২০০৮ চনৰ পৰা দুৰ্লীয়াজান মহাবিদ্যালয় গ্ৰন্থমেলাত অংশগ্ৰহণ কৰা গ্ৰন্থ প্ৰকাশনকেইটা হ'ল ২০০৮ বৰ্ষৰ পৰা ২০২৪ বৰ্ষলৈ গুৱাহাটীৰ সতীৰ্থ, জ্ঞানযাত্ৰা, আৰু ডিব্ৰুগড়ৰ পৰা অহা বনলতা। ২০০৮ বছৰৰ পৰা ২০২৪ বৰ্ষলৈ ধাৰাবাহিক ভাৱে গ্ৰন্থমেলা আয়োজন কৰা হৈছিল যদিও ক'ভিডৰ সময়ত এই মেলা স্থবিৰ হৈ পৰিছিল। এই সময়ছোৱাত গুৱাহাটী পৰা অহা সতীৰ্থ জ্ঞানযাত্ৰা গ্ৰন্থ প্ৰকাশনে অংশ গ্ৰহণ কৰিছিল আৰু ২০২৫ বৰ্ষত বনলতাই অংশ গ্ৰহণ কৰিছিল। এই গ্ৰন্থমেলাৰ উদ্দেশ্য হৈছে ছাত্ৰ ছাত্ৰ-ছাত্ৰীৰ লগতে শিক্ষক-শিক্ষয়িত্ৰী আৰু গ্ৰন্থ অনুগামীসকলক গ্ৰন্থ পঢ়াৰ প্ৰতি উৎসাহিত কৰা, সজাগতা বৃদ্ধি কৰা। মহাবিদ্যালয়ৰ এই গ্ৰন্থমেলাত বহু ছাত্ৰ-ছাত্ৰীয়ে সক্ৰিয় ভাৱে অংশগ্ৰহণ কৰা দেখা যায়।

২.১.২ কিতাপ পঢ়োঁ আহাঁ মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰৰ দ্বাৰা অনুষ্ঠিত কৰা আন এটা অনুষ্ঠান হৈছে কিতাপে পঢ়োঁ আহাঁ। প্ৰাথমিক বিদ্যালয় পৰ্যায়ত অধ্যয়নৰত ছাত্ৰ-ছাত্ৰীসকলৰ কিতাপ পঢ়াৰ প্ৰতি আগ্ৰহ জন্মোৱাৰ উদ্দেশ্য আগত ৰাখি দুৰ্লীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে ২০১৮ বৰ্ষৰ পৰা দুৰ্লীয়াজান আৰু ইয়াৰ ওচৰে-পাজৰে থকা বিদ্যালয়সমূহত

‘কিতাপ পঢ়োঁ আহাঁ’ শ্লোগানেৰে পঢ়ুৱৈ সজাগতা সভাৰ অনুষ্ঠিত কৰিবলৈ সিদ্ধান্ত গ্ৰহণ কৰে। এই উদ্দেশ্য প্ৰথমখন সভা বিবেকানন্দ স্মৃতি প্ৰাথমিক বিদ্যালয়, টিপলিং, নলনী পথাৰত ০৬-১০-২০১৮ তাৰিখে অনুষ্ঠিত কৰে। অনুষ্ঠানত দুৰ্লীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰৰ গ্ৰন্থাগাৰিকা মন্দিৰা চুতীয়াই দুটামান উপদেশমূলক সাধুকথাৰে ছাত্ৰ-ছাত্ৰীসকলক কিতাপ ক্ৰয় পঢ়িব লাগে আৰু ইয়াৰ পৰা কি উপকাৰ হয় এই বিষয়ে এটি শিক্ষামূলক বক্তৃতা প্ৰদান কৰে। ইয়াৰ লগতে বিদ্যালয়ৰ ছাত্ৰ-ছাত্ৰী সকলৰ মাজত কুইজ প্ৰতিযোগিতা অনুষ্ঠিত কৰি তাৎক্ষণিকভাৱে উত্তৰ দিয়া ছাত্ৰ-ছাত্ৰীসকলক পুৰস্কৃত কৰা হয়। শেষত বিদ্যালয়ৰ প্ৰধান শিক্ষয়িত্ৰীৰ হাতত গ্ৰন্থাগাৰৰ ফালৰ পৰা ৩১খন শিশু উপযোগী গ্ৰন্থ উপহাৰ দিয়া হয়। এই কিতাপ পঢ়োঁ আহাঁ অনুষ্ঠানটি আমাৰ দুৰ্লীয়াজান মহাবিদ্যালয়ৰ ছাত্ৰ-ছাত্ৰী সকলৰ মাজতো সফলভাৱে অনুষ্ঠিত কৰি অহা হৈছে।

এনেদৰে বিভিন্ন শিক্ষানুষ্ঠানলৈগৈ কিতাপ পঢ়োঁ আহাঁ শ্লোগানেৰে ছাত্ৰ-ছাত্ৰীৰ মাজত পঢ়াৰ প্ৰতি সজাগতা বৃদ্ধি কৰে। ২০১৮ বছৰৰ পৰা ধাৰাবাহিক ভাৱে এই অনুষ্ঠান আয়োজন কৰি আহিছে। যাতে শিশু এটাই সৰুৰে পৰাই পঢ়াৰ প্ৰতি আগ্ৰহী হয় আৰু ভৱিষ্যতে সমাজৰ এগৰাকী ভাল ব্যক্তি ৰূপে পৰিণত হয়।

২.১.৩ গ্ৰন্থ প্ৰকাশ :

দুৰ্লীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে ‘গ্ৰন্থমেলা’, ‘কিতাপ পঢ়োঁ আহাঁ’, অনুষ্ঠান অনুষ্ঠিত কৰাৰ উপৰিও মহাবিদ্যালয়ৰ ছাত্ৰ-ছাত্ৰীসকলৰ মাজত ‘গ্ৰন্থ পৰ্যালোচনা’ প্ৰতিযোগিতা অনুষ্ঠিত কৰি আহিছে। এই প্ৰতিযোগিতাত শ্ৰেষ্ঠ বিবেচিত গ্ৰন্থ পৰ্যালোচনাৰ গ্ৰন্থ সমীক্ষাসমূহ একত্ৰিত কৰি ২০২৪ চনত ‘জ্ঞানাংকুৰ’ নামে এখনি গ্ৰন্থ প্ৰকাশ কৰে। ইয়াৰ ওপৰিও ‘তথ্য-পত্ৰিকা’ (News letter) ২০১৫ চনৰ পৰাই নিয়মীয়াকৈ প্ৰকাশ কৰি আহিছে।

২.১.৪ অন্যান্য :

গ্ৰন্থ পঢ়াৰ প্ৰতি আগ্ৰহ জন্মোৱাটো বৰ্তমান এটা প্ৰত্যাহ্বান স্বৰূপ। যাৰ কাৰণে বিভিন্ন শিক্ষানুষ্ঠানে বিভিন্ন কাৰ্যকলাপ হাতত লৈছে। ছাত্ৰ-ছাত্ৰীৰ মাজত এই গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তুলিবৰ বাবে দুৰ্লীয়াজান মহাবিদ্যালয়ৰ



গ্ৰন্থাগাৰে 'কিতাপ পঢ়ো আহা 'অনুষ্ঠান, গ্ৰন্থমেলা আদি আয়োজন কৰাৰ উপৰি মহাবিদ্যালয়ত প্ৰত্যেক বছৰে নতুনকৈ অহা ছাত্ৰ-ছাত্ৰীৰ মাজত শিক্ষা প্ৰদান আৰু সচেতনতা বৃদ্ধিৰ বাবে এক **Orientation Programme** আয়োজন কৰে। বৰ্তমানলৈকে দুলীয়াজান মহাবিদ্যালয়ত প্ৰতি বছৰে পদ্মশ্ৰী ড° এছ আৰ বংগনাথনৰ জন্মদিনটো অৰ্থাৎ ১২ আগষ্টত ৰাষ্ট্ৰীয় গ্ৰন্থাগাৰিক দিৱস হিচাপে পালন কৰি আহিছে আৰু এই অনুষ্ঠানৰ যোগেদি বিভিন্ন বিশিষ্ট ব্যক্তিক আমন্ত্ৰণ কৰি আনি ছাত্ৰ-ছাত্ৰী শিক্ষাৰ উপযোগী বিভিন্ন বিষয়ৰ অনুপ্ৰেৰণামূলক বক্তৃতাৰ আয়োজন কৰা হৈছে।

৩.০ উপসংহাৰ :

ওপৰৰ আলোচনাৰ পৰা দেখা যায় যে গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়ি তোলাত দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে গুৰুত্বপূৰ্ণ ভূমিকা পালন কৰিছে। বিভিন্নধৰণৰ অনুষ্ঠান অনুষ্ঠিত কৰি ছাত্ৰ-ছাত্ৰীৰ মাজত সজাগতা বৃদ্ধি কৰাৰ ক্ষেত্ৰত উল্লেখযোগ্য অৰিহণা আগবঢ়াইছে। বৰ্তমান তথ্য প্ৰযুক্তি যেনে — ম'বাইল, ইণ্টাৰনেট, সামাজিক মাধ্যমৰ প্ৰসাৰৰ ফলত ছাত্ৰ-ছাত্ৰীক গ্ৰন্থৰ প্ৰতি আগ্ৰহী কৰাটো এক

প্ৰত্যাহ্বানস্বৰূপ। প্ৰযুক্তিবিদ্যাৰ উন্নতিয়ে প্ৰায়বোৰ লোককে গ্ৰন্থৰ পৰা দূৰত ৰাখিছে। বৰ্তমান দুলীয়াজান মহাবিদ্যালয়ৰ গ্ৰন্থাগাৰে ছাত্ৰ-ছাত্ৰী তথা শিক্ষানুষ্ঠানলৈ গৈ গ্ৰন্থ পঢ়াৰ অভ্যাস গঢ়াৰ বাবে যি প্ৰচেষ্টা হাতত লৈছে ই নিশ্চয়কৈ অদূৰ ভৱিষ্যতে আমাৰ উঠি অহা প্ৰজন্মক গ্ৰন্থৰ প্ৰতি আকৰ্ষিত কৰি তুলিব বুলি আমি আশাবাদী।

সহায়ক গ্ৰন্থপঞ্জী :

News Letter –

- VOL.1 (2015-2016)
- VOL.2 (2016-2017)
- VOL.3 (2017-2018)
- VOL.4 (2018-2019)
- VOL.5 (2019-2020)
- VOL.6 (2020-2021) & (2021-2022)
- VOL.7 (2022-2023)
- VOL 8 (2023-2024)

তথ্যদাতা : মন্দিৰা চুতীয়া, গ্ৰন্থাগাৰিক
দুলীয়াজান মহাবিদ্যালয়





Sustainability through Strategy : Financial Management in Public Enterprises

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ABSTRACT

This paper examines the multifaceted impact of financial management on public enterprises. Public enterprises play a crucial role in national economies, and their efficient financial management is paramount for achieving their objectives and contributing to societal well-being. This paper explores both the positive and negative impacts of financial management in these entities. Positive impacts include enhanced efficiency, improved resource allocation, and greater accountability. Conversely, poor financial management can lead to financial instability, inefficiency, and failure to meet public mandates. The paper further identifies key challenges faced by financial managers in public enterprises and proposes overall strategies to overcome these hurdles, ultimately aiming to highlight the critical role of sound financial management in ensuring the success and sustainability of public enterprises.

INTRODUCTION

Public enterprises, owned and operated by the government, are established to provide essential goods and services, stimulate economic growth, and achieve social objectives. Unlike private sector entities primarily driven by profit maximization, public enterprises often operate with broader mandates that include public service, employment generation, and regional development. Effective financial management is therefore crucial for these organizations to balance their financial sustainability with their social responsibilities. Sound financial practices ensure that public resources are utilized efficiently, operational costs are controlled, and long-term financial stability is maintained. This paper delves into the various

ways financial management impacts the performance and overall effectiveness of public enterprises, exploring both the benefits of good practices and the detrimental effects of poor management.

The effectiveness of financial management practices significantly shapes the overall performance and outcomes of public enterprises. Robust financial planning, execution, and control mechanisms can lead to a multitude of benefits, enabling these entities to better serve their intended purposes. Conversely, weaknesses in financial management can create significant challenges, hindering their ability to operate efficiently and achieve their objectives. The subsequent sections will delve into the specific positive and negative impacts that financial management exerts on public enterprises.

Impacts of Financial Management in Public Enterprises

Effective financial management in public enterprises yields several significant positive impacts:

- ◆ **Improved Efficiency and Profitability:** Sound budgeting, cost control measures, and efficient revenue collection can lead to improved operational efficiency and enhanced profitability. This allows public enterprises to generate surpluses that can be reinvested for growth and development.
- ◆ **Optimal Resource Allocation:** Robust financial planning and analysis enable public enterprises to allocate their limited resources effectively across various projects and activities, ensuring maximum return on investment and alignment with strategic goals.



◆ **Enhanced Accountability and Transparency :** Strong internal controls, regular audits, and transparent financial reporting foster accountability and reduce the risk of corruption and mismanagement of public funds. This builds public trust and ensures responsible use of taxpayer money.

◆ **Better Investment Decisions:** Thorough financial appraisal of potential projects and investments allows public enterprises to make informed decisions, maximizing the long-term value and contribution to their objectives.

◆ **Effective Debt Management:** Prudent borrowing strategies and efficient debt servicing ensure that public enterprises maintain a healthy financial position and avoid excessive debt burdens.

◆ **Improved Service Delivery:** By optimizing resource utilization and controlling costs, effective financial management can free up resources that can be directed towards improving the quality and accessibility of goods and services provided by the public enterprise.

◆ **Contribution to Economic Growth:** Financially sound public enterprises can contribute significantly to national economic growth through infrastructure development, employment creation, and the provision of essential services.

Conversely, inadequate or ineffective financial management can have severe negative consequences for public enterprises:

◆ **Financial Instability and Losses:** Poor budgeting, inadequate cost controls, and inefficient revenue collection can lead to financial instability, resulting in persistent losses and potential bankruptcy.

◆ **Inefficient Resource Utilization:** Lack of proper financial planning and monitoring can lead to wasteful expenditure, misallocation of resources, and underutilization of assets.

◆ **Increased Risk of Corruption and Fraud:** Weak internal controls and lack of transparency in financial transactions create opportunities for corruption, fraud, and embezzlement of public funds.

◆ **Poor Investment Decisions:** Hasty or poorly analyzed investment decisions can lead to significant financial losses and hinder the achievement of organizational objectives.

◆ **Excessive Debt Accumulation:** Uncontrolled borrowing and poor debt management can lead to unsustainable debt levels, diverting resources towards debt servicing rather than core operations.

◆ **Inability to Meet Public Mandates:** Financial constraints resulting from poor management can hinder the ability of public enterprises to effectively deliver essential goods and services to the public.

◆ **Damage to Public Trust and Reputation:** Financial mismanagement can erode public trust in government institutions and damage the reputation of the public enterprise.

◆ **Dependence on Government Subsidies:** Persistent financial losses due to poor management can lead to increased reliance on government subsidies, straining public finances.

Overall Strategies to Overcome the Challenges in Financial Management of Public Enterprises

Public enterprises face unique challenges in financial management, often stemming from political interference, bureaucratic processes, and a multiplicity of objectives. To overcome these challenges and enhance financial performance, the following strategies can be implemented:

◆ **Strengthening Corporate Governance:** Implementing robust corporate governance structures with clear roles and responsibilities, independent oversight, and accountability mechanisms is crucial.

◆ **Enhancing Financial Autonomy:** Granting greater financial autonomy to public enterprises, while maintaining appropriate oversight, can enable them to make more efficient and timely financial decisions.

◆ **Improving Financial Planning and Budgeting:** Implementing comprehensive and realistic financial planning and budgeting processes, aligned with strategic objectives, is essential.

◆ **Strengthening Internal Controls and Audit Functions:** Establishing strong internal control systems and independent audit functions can help prevent fraud, detect errors, and ensure compliance with regulations.

◆ **Investing in Capacity Building:** Providing adequate training and development opportunities



for finance professionals in public enterprises can enhance their skills and knowledge.

◆ **Promoting Transparency and Disclosure:** Ensuring timely and transparent disclosure of financial information to stakeholders can enhance accountability and build public trust.

◆ **Implementing Performance-Based Budgeting:** Linking budget allocations to performance targets can incentivize efficiency and effectiveness in resource utilization.

◆ **Adopting Modern Financial Management Information Systems:** Implementing and utilizing modern financial management information systems can improve data accuracy, efficiency, and decision-making.

◆ **Establishing Clear Performance Indicators:** Defining and monitoring key financial performance indicators can help track progress and identify areas for improvement.

◆ **Reducing Political Interference:** Minimizing undue political interference in the financial operations of public enterprises is crucial for ensuring objective and sound financial decision-making.

◆ **Focusing on Revenue Generation:** Implementing strategies to enhance revenue generation through efficient pricing policies and improved service delivery can reduce reliance on government subsidies.

◆ **Promoting a Culture of Financial Prudence:** Fostering a culture of financial prudence and accountability throughout the organization is essential for sustainable financial management.

CONCLUSION

Effective financial management is indispensable for the success and sustainability of public enterprises. It not only ensures the efficient utilization of public resources but also enables these entities to fulfill their mandates, contribute to economic growth, and enhance societal well-being. While poor financial management can lead to significant negative consequences, the implementation of sound financial practices and proactive strategies to overcome inherent challenges can transform public enterprises into efficient, accountable, and valuable assets for the nation. By focusing on strong governance,

transparency, capacity building, and strategic financial planning, public enterprises can navigate the complexities of their operating environment and achieve their objectives in a financially sustainable manner.

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The Impact of Auditing in Controlling Fraud and Other Financial Irregularities

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ABSTRACT

Auditing is a foundational pillar in the structure of financial oversight and accountability within organizations. In a rapidly evolving financial landscape marked by technological advancement and increasingly complex transactions, the incidence and sophistication of financial fraud and irregularities have correspondingly grown. The primary objective of auditing-ensuring the truthfulness and fairness of financial statements-has therefore expanded to encompass a broader responsibility: detecting and preventing fraud.

Fraud, ranging from simple misstatements to elaborate schemes of financial manipulation, has serious consequences, including loss of investor confidence, financial instability, reputational damage, and legal implications. As organizations operate on larger and more interconnected scales, the room for ethical lapses and manipulation widens, often exploiting gaps in internal controls or oversight mechanisms. In this context, auditing serves as a critical control function.

In today's business environment, frauds and irregularities are not just the result of occasional errors but can be orchestrated by insiders. These fraudulent activities are not limited to financial misstatements; they can involve theft of assets, manipulation of financial statements, and corruption. A robust audit process detects these irregularities early and provides the necessary checks to ensure financial transparency.

This seminar paper explores the comprehensive impact of auditing in identifying, mitigating, and controlling fraudulent activities and financial irregularities. The focus extends beyond conventional audit procedures, delving into advanced techniques, the role of technology,

ethical considerations, real-life case studies, and policy-level recommendations. The aim is not just to highlight how auditing reveals financial misdeeds, but to showcase how it actively contributes to a culture of transparency, compliance, and ethical financial practices across sectors.

MEANING AND IMPORTANCE OF AUDITING

a) Definition of Auditing

Auditing refers to an independent examination of financial statements, accounting records, operations, and controls of an entity. The goal of an audit is to provide assurance that the financial statements represent a true and fair view of the financial health of an organization. Auditing involves reviewing financial reports, testing financial transactions for accuracy, assessing internal controls, and evaluating operational efficiencies.

The key characteristics of an audit include:

- ◆ **Independence:** Auditors must remain objective and unbiased during the audit process.
- ◆ **Systematic Approach:** The audit process follows a structured methodology, including planning, testing, and reporting.
- ◆ **Comprehensive Coverage:** Auditing examines all aspects of a company's financials, from balance sheets to income statements, cash flow, and other financial reports.

b) Objectives of Auditing

The core objective of auditing is to enhance the reliability of financial statements by identifying errors and fraud. However, auditors also have several other important goals:



◆ **Accuracy and Compliance:** The audit process ensures that financial reports comply with relevant accounting standards (like IFRS or GAAP) and reflect the true financial position.

◆ **Fraud Detection:** Auditors look for discrepancies, irregularities, and fraudulent activities in financial records.

◆ **Internal Control Assessment:** Evaluating the adequacy of internal controls to prevent errors and fraud.

◆ **Providing Assurance to Stakeholders:** Audits reassure investors, creditors, regulators, and other stakeholders that the financial information provided is credible.

c) Importance in Business

Auditing is a critical component of good corporate governance. It plays an essential role in establishing and maintaining the trust of stakeholders by:

◆ **Enhancing Transparency:** Auditing ensures that financial records accurately reflect the financial position of the company. Transparent financial reporting is crucial for attracting investors and securing loans.

◆ **Building Credibility:** Companies that undergo regular audits are viewed as more trustworthy by investors and lenders. The credibility of audited financial statements helps maintain market confidence.

◆ **Risk Mitigation:** Through audits, businesses can identify financial mismanagement, inefficiencies, and vulnerabilities that could lead to financial losses or legal troubles.

◆ **Regulatory Compliance:** Auditing ensures that businesses comply with local and international laws and regulations, including tax and financial reporting regulations.

d) Assurance to Stakeholders

Auditing provides assurance to multiple stakeholders:

◆ **Investors:** Audits confirm that the financial statements are accurate and free from misrepresentation, providing investors with reliable data for making investment decisions.

◆ **Lenders:** Banks and financial institutions rely

on audited financial statements to assess the financial stability and creditworthiness of businesses before offering loans.

◆ **Regulatory Authorities:** Regulatory bodies like the Securities and Exchange Commission (SEC) rely on audits to ensure that companies are adhering to relevant legal requirements.

◆ **Shareholders and Employees:** Shareholders benefit from accurate and fair reporting of the company's performance, while employees benefit from improved job security when the company is managed properly.

e) Compliance with Legal Framework

Auditing is essential for ensuring that companies comply with various legal frameworks. These include:

◆ **Tax Laws:** Accurate financial reporting is critical for tax filings and compliance with tax regulations.

◆ **Corporate Governance Regulations:** Laws such as the Companies Act mandate regular audits for certain companies to ensure proper financial reporting.

◆ **Financial Reporting Standards:** Auditing ensures compliance with globally accepted financial reporting standards such as the International Financial Reporting Standards (IFRS) and the Generally Accepted Accounting Principles (GAAP).

Understanding Fraud and Financial Irregularities --

a) Definition of Fraud

Fraud refers to deliberate actions that deceive stakeholders to gain an unfair advantage. Fraud can take various forms, including financial statement fraud, asset misappropriation, bribery, and corruption.

Fraudulent activities typically involve:

◆ **Intentional Misstatement of Financial Records:** Manipulating figures to create a false financial picture.

◆ **Embezzlement:** Employees or managers diverting company funds for personal use.

◆ **Overstating Revenues or Understating Liabilities:** Inflating income or hiding debts to



enhance the company's financial position.

◆ **Bribery and Corruption:** Offering or accepting bribes to influence decisions or bypass regulations.

b) Types of Fraud

1. **Asset Misappropriation:** This is the most common type of fraud, involving the theft or misuse of company assets like cash, inventory, and intellectual property.

Example: An employee may siphon off money from the cash register or misappropriate office supplies for personal use.

2. **Financial Statement Fraud:** This type involves deliberate misrepresentation of financial statements to mislead stakeholders, such as inflating revenues or falsifying expenses.

Example: Companies may overstate their earnings to meet analysts' expectations, masking poor performance.

3. **Corruption:** Corruption involves bribery, kickbacks, and unethical relationships with suppliers, customers, or government officials.

Example: A company may bribe a government official to secure a favourable contract.

c) Causes of Fraud

Fraud is often driven by multiple factors, including:

◆ **Financial Pressure:** Employees may resort to fraudulent activities to meet unrealistic financial targets or personal financial needs.

◆ **Lack of Oversight:** Inadequate monitoring of operations creates opportunities for employees to commit fraud.

◆ **Weak Internal Controls:** Poorly designed or ineffective internal control systems fail to prevent and detect fraud.

◆ **Cultural Environment:** A company culture that tolerates unethical behavior can encourage fraudulent activities.

◆ **Rationalization:** Fraudsters often justify their actions, thinking that they are entitled to the money or that their actions will not have significant consequences.

d) Financial Irregularities

Financial irregularities are unintentional deviations from accounting norms and principles. They include:

◆ **Errors in Financial Reporting:** Simple mistakes in calculations or oversight that affect the financial statements.

◆ **Non-compliance with Standards:** Failure to follow accepted accounting practices or tax regulations.

These irregularities can mislead stakeholders, though they are often corrected once detected. However, in cases where they go unnoticed or are not addressed, they can lead to severe financial misstatements.

Role of Auditing in Detecting Fraud

a) Overview of Auditing's Role

Auditing plays a central role in detecting and preventing fraud. By systematically examining financial records and internal controls, auditors can uncover discrepancies, errors, and irregularities that might otherwise go unnoticed. Auditors provide an independent perspective on the financial reporting processes, offering stakeholders assurance that the financial statements are free from material misstatements, whether due to fraud or error.

Auditors use various techniques to detect fraud, including data analysis, forensic audits, and detailed transaction reviews. Their role is not limited to detecting fraud; they also provide recommendations for strengthening internal controls and preventing future fraud.

b) Identifying Red Flags of Fraud

Auditors are trained to identify certain "red flags" that may indicate the presence of fraudulent activity.

These red flags include:

◆ **Inconsistent Financial Trends:** Sudden changes in financial statements, such as a drastic increase in revenues or a decline in expenses, without a clear explanation.

◆ **Unusual Transactions:** Large or irregular transactions, especially those that bypass normal accounting processes.

◆ **Lack of Supporting Documentation:**



Missing or incomplete records for significant financial transactions, such as invoices or receipts.

◆ **Unusual Employee Behavior:** Employees under pressure, with personal financial difficulties or sudden wealth, may be more likely to engage in fraudulent activities.

Auditors focus on these indicators during the audit process to identify any suspicious patterns that warrant further investigation.

c) **Procedures to Detect Fraud**

Auditing procedures are designed to uncover fraudulent activities and ensure financial statements are accurate. Common procedures include:

◆ **Analytical Procedures:** Auditors compare financial data over periods and against industry standards to identify inconsistencies.

◆ **Substantive Testing:** Auditors test specific transactions and balances to verify their accuracy.

◆ **Detailed Interviews and Surveys:** Auditors may interview employees, management, and other stakeholders to understand operational processes and detect anomalies.

◆ **Forensic Audits:** In cases of suspected fraud, auditors may conduct forensic investigations to trace the source and nature of fraudulent activities.

d) **Fraud Detection Tools**

Advances in technology have provided auditors with new tools to detect fraud more effectively. These tools include:

◆ **Data Analytics Software:** Auditors can now analyze large datasets more efficiently, using software to identify outliers, trends, and unusual patterns that may indicate fraudulent activity.

◆ **Continuous Auditing:** This approach involves the regular examination of financial records on an ongoing basis, allowing auditors to detect fraud in real-time.

◆ **Blockchain Analysis:** With the rise of cryptocurrency and blockchain technology, auditors are increasingly using blockchain analysis tools to detect fraudulent transactions involving digital assets.

e) **Auditing Standards in Fraud Detection**

International auditing standards set guidelines on how auditors should approach fraud detection. These include:

◆ **The International Standards on Auditing (ISA) 240:** This standard specifically addresses the auditor's responsibilities in detecting and responding to fraud.

◆ **The Generally Accepted Auditing Standards (GAAS):** GAAS guides auditors on how to perform their audits with due diligence, ensuring the detection of fraud.

◆ **The Sarbanes-Oxley Act (SOX):** In the United States, SOX mandates specific procedures for auditors to follow to detect and prevent corporate fraud.

Types of Audit and Their Relevance in Fraud Prevention

a) **Types of Audits**

There are different types of audits conducted to examine financial statements and operational processes. Each type has its own relevance in preventing and detecting fraud:

◆ **Internal Audits:** Performed by employees within the organization, internal audits focus on assessing the effectiveness of internal controls, risk management systems, and compliance with company policies. They are a crucial first line of defence against fraud.

Example: An internal audit might detect discrepancies in inventory records or detect employees misappropriating company funds.

◆ **External Audits:** Conducted by independent external auditors, these audits provide an objective assessment of the company's financial statements and operations. External audits focus on ensuring that the financial statements are free of material misstatements and comply with accounting standards.

Example: An external auditor might discover financial statement fraud by identifying inconsistent revenue reporting across periods.

◆ **Forensic Audits:** This specialized audit involves investigating financial records to detect fraud, corruption, and other illegal activities. Forensic audits are more in-depth and are often used when fraud is suspected.

Example: Forensic auditors may track suspicious transactions, interview key personnel, and use investigative techniques to uncover



financial crimes.

◆ **Compliance Audits:** These audits verify whether an organization is complying with external regulations, such as tax laws or industry-specific requirements. Fraud detection is a key aspect of compliance audits, especially when organizations fail to follow legal guidelines to cover up fraud.

◆ **Performance Audits:** These audits evaluate the efficiency and effectiveness of an organization's operations. While performance audits primarily focus on operational performance, auditors may uncover fraud or wasteful activities.

b) **Relevance in Fraud Prevention**

◆ **Internal Audits:** Internal audits are instrumental in identifying weaknesses in controls, systems, and processes that could be exploited for fraud. Regular internal audits ensure that managers and employees remain aware of fraud prevention measures, creating an environment where fraudulent behaviour is less likely to occur.

◆ **External Audits:** External audits provide independent verification of financial statements, and their ability to detect fraud is one other key benefits for stakeholders. External auditors also recommend changes to improve controls and fraud prevention strategies.

◆ **Forensic Audits:** Forensic audits are directly tied to fraud detection and prevention.

These audits go beyond financial reporting, focusing on uncovering fraudulent activities through detailed investigation and analysis.

◆ **Compliance Audits:** By ensuring adherence to legal and regulatory requirements, compliance audits help organizations maintain their integrity and avoid engaging in fraudulent practices.

c) **Audit Relevance in Financial Fraud Risk**

Auditors assess the risk of fraud by evaluating the likelihood of its occurrence and the potential impact it would have on financial statements. The audit helps to mitigate fraud risks through:

◆ **Identifying High-Risk Areas:** Auditors pinpoint areas where the risk of fraud is higher, such as cash management, procurement, or payroll.

◆ **Testing Internal Controls:** Auditors assess whether the internal controls in place can effectively prevent or detect fraud. Weak internal

controls often serve as an invitation for fraud.

◆ **Investigating Significant Transactions:** Auditors scrutinize large or unusual transactions, especially those with high risk for misstatement.

Techniques Used in Auditing to Detect Irregularities

a) **Analytical Procedures**

Analytical procedures are used to evaluate financial information by studying plausible relationships among financial and non-financial data. By comparing current year data with previous years, industry norms, and budgets, auditors can detect significant deviations that may indicate irregularities.

◆ **Trend Analysis:** Auditors analyze financial statements over time to identify trends and unusual fluctuations.

◆ **Ratio Analysis:** Common financial ratios (such as profitability, liquidity, and leverage ratios) help auditors identify anomalies or inconsistencies in a company's performance.

◆ **Reasonableness Tests:** Auditors use reasonableness tests to ensure that financial figures fall within expected ranges based on historical data, industry standards, and known facts.

b) **Substantive Testing**

Substantive testing is the process of verifying the accuracy of financial statements through direct examination of evidence. This includes checking individual transactions, invoices, receipts, and bank statements for legitimacy.

◆ **Detailed Transaction Testing:** Auditors examine specific financial transactions to confirm they are legitimate, properly recorded, and authorized.

◆ **Physical Verification of Assets:** Auditors physically count inventory and check the existence of assets to prevent theft or misreporting.

c) **Confirmation Procedures**

Confirmation procedures involve obtaining third-party verification of transactions or balances, such as bank statements or customer balances. These confirmations help ensure the accuracy and legitimacy of reported financial information.

◆ **Bank Confirmation:** Auditors may contact banks directly to confirm account balances and



reconcile differences.

◆ **Receivable Confirmations:** Auditors send confirmation requests to customers to confirm the amounts owed and prevent fraudulent overstatements of receivables.

d) **Interviewing and Data Mining**

Interviews with key personnel are essential for gathering information regarding accounting practices, operational processes, and potential areas of concern. In addition, auditors increasingly use data mining techniques to analyze large datasets, identifying patterns that might suggest fraudulent activities.

Real-Life Examples and Case Studies

a) **The Enron Scandal**

One of the most notorious fraud cases in history, the Enron scandal, involved the manipulation of financial statements to mislead investors and regulators. Enron used complex accounting techniques like off-balance-sheet entities and special purpose entities (SPEs) to hide its mounting debts and inflate profits. The role of auditors, particularly Arthur Andersen, came into question when it was revealed that the auditors had failed to adequately review the company's financial statements, allowing the fraud to continue undetected for years.

◆ **Impact on Auditing:** The Enron case led to stricter regulations, including the SarbanesOxley Act, which increased auditing standards, requiring auditors to be more diligent in reviewing financial statements and internal controls.

b) **The Volkswagen Emissions Scandal**

In 2015, Volkswagen was exposed for using software to cheat on emissions tests. The company installed "defeat devices" in its diesel vehicles to pass emissions tests while in fact releasing more pollutants than allowed by law. This fraud was detected by a regulatory body, but auditing and internal controls should have caught the issue earlier.

◆ **Impact on Auditing:** This case demonstrated the need for a broader approach to auditing that includes not just financial data but also operational practices. Auditors need to be vigilant about environmental regulations and operational ethics.

c) **The Satyam Scandal**

In India, Satyam Computer Services became the centre of a massive accounting scandal when its founder, Ramalinga Raju, confessed to inflating the company's revenues and profits by over \$1 billion.

The fraud was initially overlooked by the auditors, who failed to detect discrepancies in the financial statements. The company's downfall led to a loss of confidence in auditing practices in India.

◆ **Impact on Auditing:** The Satyam scandal prompted a reassessment of audit quality and led to the formation of stricter auditing standards in India. The case highlights the importance of thorough verification and independent judgment by auditors.

d) **The Lehman Brothers Collapse**

The collapse of Lehman Brothers in 2008 was one of the major events in the global financial crisis.

Lehman used an accounting technique called Repo 105 to temporarily remove debt from its balance sheet to appear financially healthier. Despite this fraud being relatively transparent to an experienced auditor, the company's auditors failed to report the irregularities.

◆ **Impact on Auditing:** The Lehman Brothers case emphasized the need for auditors to critically assess financial reporting practices and to question potential financial engineering used to obscure financial realities. It reinforced the need for transparency and accountability in financial audits.

Challenges Faced by Auditors

a) **Increasing Complexity of Financial Systems**

As businesses become more complex, auditors face the challenge of understanding intricate financial systems and structures. Modern financial instruments, international operations, and complex organizational structures make it difficult for auditors to keep track of everything that could potentially be fraudulent.

◆ **Impact:** Auditors must continually update their skills and knowledge to stay ahead of the growing complexity of financial reporting systems.



b) Pressure from Management and External Parties

Auditors often face pressure from management to overlook irregularities, especially when the company is struggling financially. This pressure can arise from both internal and external stakeholders who wish to maintain the company's reputation or avoid regulatory scrutiny.

◆ **Impact:** Independence is one of the core principles of auditing, but external pressures can compromise this independence and may result in auditors failing to report significant irregularities.

c) Lack of Resources

Many auditing firms, especially smaller ones, may lack the resources necessary to conduct a thorough audit. In such cases, audits may become more superficial, with auditors relying on samples rather than conducting a comprehensive review of financial records.

◆ **Impact:** The effectiveness of an audit is reduced when auditors are unable to dedicate the required time and resources to thoroughly investigate financial statements and transactions.

d) Technological Challenges

With the rise of big data, blockchain technology, and automation, auditors now face the challenge of keeping up with the latest technological tools. While technology offers great potential for improving auditing efficiency and effectiveness, auditors must be trained to use new tools and navigate the complexities of data privacy and cybersecurity.

◆ **Impact:** Auditors may miss signs of fraud or errors if they are not fully proficient with emerging technologies and cannot adapt to the rapid pace of technological change.

e) Globalization of Business

The globalization of business means that auditors often have to examine financial transactions across multiple jurisdictions, each with its own accounting standards, legal requirements, and business practices. This adds an extra layer of complexity to the audit process and may create opportunities for fraud to be hidden.

◆ **Impact:** Auditors need to be well-versed in international accounting practices and laws to

ensure that they can adequately assess financial reporting on a global scale.

Internal vs. External Audit in Fraud Control

a) Internal Audits

Internal audits are conducted by employees of the organization, and their primary focus is on reviewing and improving internal controls. Internal auditors are responsible for detecting fraud early by monitoring operations and identifying weaknesses in financial systems. They have an in-depth understanding of company processes, which can help them spot areas where fraud may occur.

Advantages in Fraud Control:

◆ **Continuous Monitoring:** Internal auditors can provide ongoing vigilance and identify irregularities in real-time.

◆ **Proactive Approach:** By focusing on internal controls, internal auditors can suggest improvements to prevent fraud before it occurs.

Limitations:

◆ **Lack of Independence:** Since internal auditors are part of the organization, there can be a lack of objectivity, especially when it comes to investigating senior management.

◆ **Potential Conflict of Interest:** Internal auditors may feel pressured to downplay issues to protect the company's reputation.

b) External Audits

External audits are performed by independent auditing firms or individuals. External auditors provide an objective assessment of a company's financial statements and internal controls. Their role in fraud detection is essential, as they offer an unbiased view of financial records and operations.

Advantages in Fraud Control:

◆ **Independence:** External auditors are not influenced by internal management, allowing them to assess financial records more objectively.

◆ **Expertise:** External auditors often bring specialized knowledge of accounting standards and fraud detection techniques, which may not be available within the organization.

Limitations:

◆ **Limited Interaction:** External auditors may not be as familiar with the day-to-day operations



of the organization and may miss subtle signs of fraud.

◆ **Sampling Limitations:** External auditors generally use sampling techniques and may not examine every transaction in detail.

c) **Collaboration between Internal and External Auditors**

In order to improve fraud detection and prevention, it is essential for internal and external auditors to collaborate. Internal auditors can provide external auditors with critical insights into the company's operations, while external auditors can offer guidance on best practices and auditing standards. This collaboration can help build a more comprehensive approach to fraud prevention.

Role of Technology in Modern Auditing

a) **Data Analytics and Big Data**

Data analytics tools enable auditors to analyze vast amounts of financial data quickly and efficiently.

Using algorithms and statistical models, auditors can detect anomalies in financial transactions, identify trends, and predict future fraud risks.

◆ **Impact on Fraud Detection:** Data analytics help auditors identify hidden patterns and unusual transactions that might indicate fraudulent activities, even before they fully materialize.

b) **Continuous Auditing**

Continuous auditing involves the real-time review of financial transactions and operations, as opposed to traditional periodic audits. By using automated systems, auditors can identify fraud as soon as it occurs, reducing the risk of material financial misstatements.

◆ **Impact:** Continuous auditing allows auditors to react quickly to fraudulent activities, preventing significant losses before they escalate.

c) **Blockchain Technology**

Blockchain technology provides an immutable and transparent ledger of transactions, making it difficult to manipulate financial records. Auditors can use blockchain to track and verify transactions, ensuring the authenticity of financial statements.

◆ **Impact on Fraud Detection:** Blockchain enhances transparency and security, making it significantly harder for fraud to go undetected.

d) **Artificial Intelligence (AI) and Machine Learning**

AI and machine learning technologies are transforming the auditing profession. These technologies enable auditors to automate routine tasks, analyze large datasets more efficiently, and detect fraud using predictive models and pattern recognition algorithms.

◆ **Impact:** AI and machine learning significantly enhance the ability of auditors to detect irregularities, fraud, and inefficiencies in financial records.

Importance of Ethical Practices and Auditor Independence

a) **Ethical Standards in Auditing**

Auditors must adhere to strict ethical standards to maintain the trust of stakeholders. Ethical practices, such as maintaining independence, integrity, and objectivity, are the foundation of effective auditing.

Without these values, audits lose their credibility and effectiveness in detecting fraud.

b) **Auditor Independence**

Auditor independence is essential for ensuring unbiased judgments during audits. Auditors must not have any personal or financial interest in the company they are auditing. This independence is critical for detecting fraud and ensuring the accuracy of financial statements.

◆ **Impact on Fraud Detection:** A lack of independence can lead to compromised audits, where auditors overlook or ignore signs of fraud to protect their relationships with the company.

Regulatory Framework and Standards for Auditing

Auditing is governed by a robust regulatory framework that ensures consistency, transparency, and accountability across industries. In India, the Companies Act, 2013, and standards issued by the Institute of Chartered Accountants of India (ICAI) govern auditing practices.



Globally, the International Auditing and Assurance Standards Board (IAASB) issues International Standards on Auditing (ISA), which are widely adopted by audit firms. The U.S. follows Generally Accepted Auditing Standards (GAAS) and the Sarbanes-Oxley Act (SOX), which mandates internal control reporting.

These regulations and standards define the responsibilities of auditors, outline audit procedures, and establish reporting requirements. They aim to uphold the integrity of the audit process and protect public interest.

Compliance with these standards ensures that audits are conducted uniformly, enhancing comparability and reliability of financial information.

Recommendations to Improve Audit Effectiveness

a) Enhancing Auditor Training

To improve the effectiveness of audits in detecting fraud, auditors need ongoing training on the latest auditing techniques, emerging technologies, and fraud detection strategies. This includes understanding the use of data analytics, artificial intelligence, and forensic auditing methods.

b) Strengthening Internal Controls

Companies must continuously assess and strengthen their internal controls to prevent fraud. Auditors can provide recommendations for improving controls, such as implementing segregation of duties, enhancing approval processes, and conducting regular risk assessments.

c) Improved Collaboration between Auditors and Management

Auditors should foster open communication with management to ensure that fraud risks are

addressed proactively. This collaboration can help auditors understand the company's operations better, identify potential fraud risks, and make recommendations for improvement.

CONCLUSION

Auditing serves as a critical line of defence against financial fraud and irregularities. It ensures transparency, strengthens accountability, and builds trust among stakeholders. In a world where financial scandals can bring down entire corporations, the auditor's role has never been more crucial.

This paper has explored how different types of audits contribute to fraud detection, the tools and technologies employed, the challenges faced, and the regulatory framework that supports audit practices. By adhering to high ethical standards and leveraging modern technology, auditors can effectively combat fraud.

A strong audit culture not only prevents financial misstatements but also fosters ethical business practices. It is therefore imperative for organizations to empower auditors, promote compliance, and uphold the sanctity of the audit process.

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Impact of Financial Management in Public Enterprise

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ABSTRACT

Financial management in public enterprises is critical for enhancing efficiency, transparency, and long-term sustainability. It ensures optimal allocation of resources, effective budgeting, and cost control, leading to improved service delivery and reduced financial risks. By adhering to regulations and maintaining accountability, public enterprises build trust with stakeholders and the public.

Keywords : Efficiency, Resource Allocation, Financial Stability, Transparency, Accountability

INTRODUCTION:

Financial management is the strategic planning, organizing, directing, and controlling of financial activities in an organization or individual setting. It involves managing money efficiently to achieve financial goals, ensure liquidity, maintain profitability, and maximize value.

Financial management plays a crucial role in the success and sustainability of public enterprises. These government-owned organizations are established to provide essential goods and services to the public, often in sectors like energy, transport, healthcare and infrastructure. Effective financial management ensures that public resources are used efficiently, transparently, and responsibly. Financial management in public enterprises ensures the efficient use of public funds, promotes transparency, and enhances the accountability. It helps in resource allocation, cost control and financial sustainability, enabling enterprises to meet their objectives without running into deficits. Effective financial management also improves decision-making by providing accurate financial data, support risk management by forecasting challenges and builds public trust through responsible handling of taxpayer money.

Ultimately, it contributes to the enterprise's long-term success.

In public enterprises, financial management helps in:

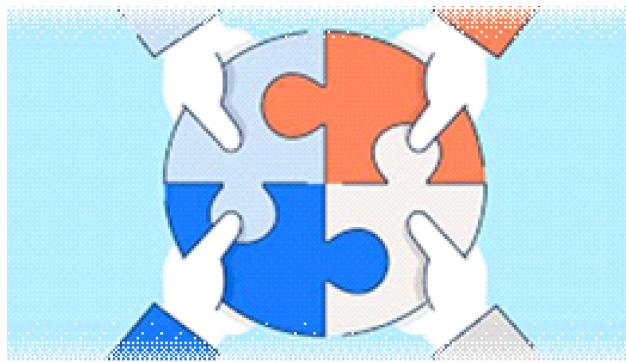
- ◆ Allocating budgets wisely, ensuring funds are used for priority projects.
- ◆ Maintaining accountability and reducing misuse of public funds.
- ◆ Improving operational efficiency, so services can be delivered cost-effectively.
- ◆ Supporting long-term planning and investment in public infrastructure.
- ◆ Ensuring financial sustainability, even when profits are not the primary goal.

By strengthening financial control and transparency, financial management builds public trust and enhances the overall performance and service delivery of public enterprises.

Impact of Financial Management in Public Enterprises:

◆ **Resource allocation:**

Resource allocation in financial management plays a vital role in enhancing the efficiency and effectiveness of public enterprises. By carefully distributing financial resources to various



departments, projects, and services based on priority and strategic goals, public enterprises can ensure that critical areas receive adequate funding.



This helps avoid resource wastage and ensures that public funds are used in the most productive way. Proper resource allocation also supports balanced development, allowing enterprises to maintain essential services, invest in infrastructure, and implement longterm projects without financial strain. Moreover, it aids in aligning expenditures with government policies and public expectations, ensuring transparency and accountability. In this way, resource allocation as a function of financial management helps public enterprises deliver better services, achieve financial sustainability, and fulfill their social and economic responsibilities.

◆ **Financial sustainability:**

Financial sustainability in financial management plays a crucial role in shaping the success and longevity of public enterprises. When a public enterprise maintains financial sustainability, it ensures that its revenues are sufficient to cover its operating costs, debts, and future investments without relying excessively on government subsidies or external borrowing. This leads to greater efficiency, improved service delivery, and enhanced public trust. Sustainable financial management also enables better planning and resource allocation, allowing the enterprise



to invest in infrastructure, innovation, and human capital. Moreover, it reduces fiscal pressure on the government, promoting economic stability and allowing funds to be redirected to other critical sectors like health and education. Ultimately,

financial sustainability helps public enterprises fulfill their mandates effectively while maintaining accountability and resilience in changing economic conditions.

◆ **Transparency and accountability:**

Transparency and accountability in financial management have a significant impact on the performance and credibility of public enterprises. When financial activities are conducted openly and records are made accessible, it builds public trust and reduces the risk of corruption, fraud, and mismanagement. Accountability ensures that managers and decision-makers are held responsible for the financial outcomes of their actions, encouraging more prudent and efficient



use of public resources. Together, transparency and accountability enhance decision-making, as stakeholders can assess performance based on clear, reliable information. They also foster a culture of integrity and professionalism within the enterprise, which can lead to improved service delivery and operational efficiency. In the long run, these principles support better governance, promote investor and donor confidence, and ensure that public enterprises fulfill their roles in contributing to national development goals.

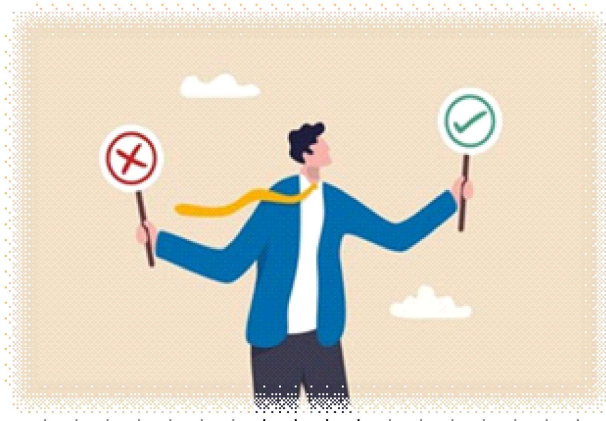
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efficiency. In the long run, these principles support better governance, promote investor and donor confidence, and ensure that public enterprises fulfill their roles in contributing to national development goals.

◆ **Improved decision making :**

Decision-making in financial management significantly impacts public enterprises by influencing their efficiency, transparency, and ability to achieve social and economic goals. Effective financial decisions ensure optimal allocation of limited public resources, helping these enterprises deliver services sustainably and cost-effectively. Sound budgeting, investment, and expenditure controls enhance operational performance, reduce waste, and improve accountability, which is essential for maintaining public trust. On the other hand, poor financial management can lead to misallocation of funds, increased debt, and underperformance, ultimately affecting service delivery and public welfare.



Therefore, strategic and responsible financial decisionmaking is crucial in ensuring that public enterprises fulfill their mandates while maintaining fiscal discipline and long-term viability.

◆ **Cost control :**

Cost control in financial management plays a crucial role in the performance and sustainability of public enterprises. By monitoring and regulating expenses, cost control ensures that public funds are used efficiently and for their intended purposes. This helps prevent overspending, reduces financial waste, and allows for better allocation of resources to priority areas such as infrastructure, health, or

education. Effective cost control also enhances transparency and accountability, which are vital in maintaining public trust and meeting regulatory standards. Moreover, it supports long-term financial planning and stability, enabling public



enterprises to deliver consistent and high-quality services without unnecessary financial strain. In contrast, weak cost control can lead to budget deficits, inefficient operations, and failure to achieve organizational goals.

◆ **Risk management :**

Risk management in financial management is essential for the stability and resilience of public enterprises. It involves identifying, assessing, and mitigating financial risks that could negatively affect operations, such as market fluctuations, policy changes, or economic downturns. Effective risk management helps public enterprises anticipate potential challenges and develop



strategies to minimize their impact, ensuring continuity in service delivery and safeguarding public assets. It also promotes informed



decisionmaking by evaluating the potential outcomes of financial activities and investments. When risks are managed properly, public enterprises can avoid unexpected losses, maintain public confidence, and operate more sustainably. However, poor risk management can lead to financial instability, project failures, and a loss of public trust, ultimately undermining the organization's ability to fulfill its public service mandate.

◆ **Public service improvement :**

Improving financial management in public service can significantly enhance the performance and sustainability of public enterprises. Effective financial management ensures transparent budgeting, accurate financial reporting, and responsible resource allocation, which are essential for building trust and accountability. When public enterprises manage their finances efficiently, they can reduce waste, avoid corruption, and optimize the use of public funds. This leads to better service delivery, improved



infrastructure, and the ability to invest in innovation and development. Additionally, sound financial practices attract investor confidence and can open doors for public-private partnerships. Ultimately, improved financial management strengthens governance, boosts public confidence, and contributes to the overall economic growth and social well-being of a nation.

◆ **Enhanced government policy implementation :**

Government policy implementation of financial management can greatly influence the efficiency, transparency, and accountability of

public enterprises. When governments establish and enforce clear financial policies-such as standardized accounting systems, auditing requirements, and performance-based budgeting- public enterprises are guided toward more disciplined and responsible financial behavior. These policies help minimize financial mismanagement, ensure compliance with regulations, and improve the monitoring of



expenditures and revenues. As a result, public enterprises are better equipped to make informed decisions, allocate resources effectively, and achieve their operational and strategic goals.

Moreover, consistent policy implementation promotes public trust and investor confidence, which can lead to increased funding opportunities and stronger public-private partnerships. Overall, government-driven financial management policies play a crucial role in enhancing the performance, sustainability, and accountability of public enterprises.

◆ **Improved public private partnership (PPP):**

Improved public-private partnerships (PPPs) in financial management can have a transformative impact on public enterprises by bringing in private sector expertise, efficiency, and innovation. When public enterprises collaborate with private partners under well-structured financial management frameworks, they benefit from better project planning, cost control, and risk sharing. The private sector's emphasis on performance and return on investment often leads to more effective resource utilization and higher service quality.



Additionally, improved PPPs can introduce advanced financial technologies and management practices that strengthen transparency and accountability within public enterprises. These collaborations also help bridge funding gaps for large-scale infrastructure and development projects, reducing the financial burden on the government. Ultimately, enhanced PPPs in financial management support sustainable growth, improve service delivery, and increase public confidence in the operations of public enterprises.

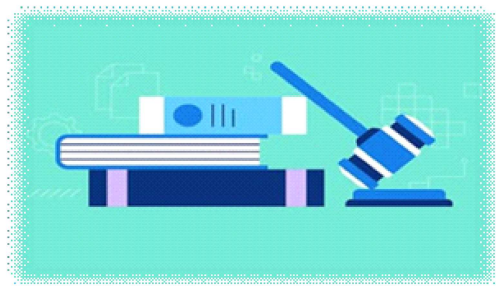
◆ **Compliance with regulation :**



Compliance with financial management regulations has a significant impact on the effectiveness and credibility of public enterprises. Adhering to established financial rules and standards ensures transparency, accountability, and integrity in the handling of public funds. It helps prevent fraud, corruption, and mismanagement by promoting consistent financial practices, such as accurate recordkeeping, timely reporting, and proper auditing procedures. When public enterprises comply with regulations, they build trust with stakeholders, including the government, investors, and the public. This trust can lead to increased support, funding opportunities, and a stronger reputation. Furthermore, regulatory compliance encourages better decision-making and risk management, as financial activities are guided by clear legal and ethical frameworks. In the long term, this leads to improved operational efficiency, financial sustainability, and the successful achievement of organizational goals.

◆ **Enhanced service delivery :**

Enhanced service delivery through effective financial management can greatly improve the



performance and public perception of public enterprises. When financial resources are managed efficiently, public enterprises can allocate funds appropriately to critical areas such as infrastructure, staffing, technology, and maintenance. This leads to more reliable, timely, and higher-quality services for citizens. Improved financial planning and budgeting ensure that services are not disrupted due to funding shortages or mismanagement. Moreover, with better financial oversight, public enterprises can identify cost-saving opportunities and reinvest those savings into service improvements. Enhanced service delivery also boosts public satisfaction and trust, which in turn can increase support for public initiatives and compliance with payments or usage



fees. Ultimately, efficient financial management directly contributes to the mission of public enterprises-to serve the public interest effectively and sustainably.

◆ **Strengthened Governance:**

Strengthened governance of financial management in public enterprises can significantly enhance their efficiency, transparency, and



accountability. When strong governance frameworks are in place, financial decisions are made based on clear rules, risk assessments, and strategic goals rather than political or personal interests. This leads to better allocation of resources, reduction in waste and corruption, and improved service delivery. Strong financial governance also ensures regular audits, performance evaluations, and compliance with regulatory standards, which builds public trust and investor confidence. Moreover, it helps public enterprises operate more like well-run private entities, promoting sustainability and long-term financial health, which ultimately contributes to economic development and improved public welfare.

CONCLUSION

In conclusion, the impact of financial management on public enterprises is profound and multifaceted, playing a pivotal role in their overall effectiveness and long-term sustainability. Sound financial management ensures that public enterprises can allocate resources efficiently, prioritize essential services, and minimize waste, which directly contributes to improved service delivery and operational efficiency. By maintaining financial stability through prudent budgeting, cash flow management, and cost control, these enterprises can weather economic fluctuations and secure long-term viability. Moreover, adherence to financial regulations and transparent financial practices fosters accountability, mitigates risks of corruption or mismanagement, and builds public trust. Financial management also empowers better decision-making, providing managers with the necessary data to plan strategically and respond to challenges. With effective financial oversight, public enterprises can attract investment, forge successful public-private partnerships, and continue to serve the public efficiently. Ultimately, the impact of financial management extends beyond just financial health; it strengthens governance, promotes ethical practices, enhances public confidence, and ensures that public enterprises can meet their missions in contributing

to economic growth, social welfare, and national development.

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AI Language tool -

◆ ChatGPT

This AI language model was utilized as a tool for various aspects of the project. It has assisted in summarizing complex information from different sources.





Treatment Preference and use of Traditional Knowledge for the cure of Malaria among the Population of Duliajan, Assam - A Survey

Submitted By -

Tridip Pandit, Niraj Thakur, Adarsha Ashwas Dutta, Monish Chawra, Sneha Jaiswal,
Disha Borah, Binita Chetry, Bedika Gogoi
(B.Sc. - 4th semester, Zoology Department)

ABSTRACT

Malaria is a dangerous and potentially fatal disease caused by a parasite of the *Plasmodium* species that is transferred to humans via the bite of an infected *Anopheles* mosquito. It is prevalent in tropical and subtropical regions, including parts of Africa and Asia. The disease continues to pose a persistent threat despite intensive efforts to curb its spread. Communities across NE India have diverse knowledge of plant based traditional medicine and utilizes plants from families like Verbenaceae, Acanthaceae, Asteraceae, Rubiaceae, Rutaceae, Lamiaceae, Euphorbiaceae, etc., for their anti-malarial properties. In addition, many indigenous communities of NE India also use traditional animal-based medicines as an alternative to conventional health care systems. Live animals as well as various animal byproducts such as hooves, scales, bones, feathers, tusks, etc. from a wide variety of animals like insects, fishes, reptiles, birds and even mammals have been used as essential ingredients for the preparation of some remedial drugs. The documentation of these traditional malarial cures is crucial for promoting scientific study and validation along with the maintenance of indigenous knowledge and safeguarding cultural intellectual property.

Key words: Malaria, treatment, indigenous knowledge.

1. INTRODUCTION

Malaria is a mosquito - borne infectious diseases of humans and other animals caused by eukaryotic protists of the genus *Plasmodium*. The disease results from infection of *Plasmodium*

parasites within red blood cells, causing symptoms that typically include fever and headache, in severe cases progressing to coma or death.

Malaria is caused by the *Plasmodium* parasite. The parasite can be spread to human through the bites of infected mosquitoes. There are many different types of *Plasmodium* parasites, but only five caused malaria in humans. Severe disease is largely caused by *Plasmodium falciparum* while the disease caused by *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae* is generally a milder disease.

A female *Anopheles* mosquito carrying malaria - causing parasites feeds on a human and inject the parasites in the form of sporozoites into the blood streams. The sporozoites travel to the liver and invade liver cells. Over 5-6 days, the sporozoites grow, divide, and produce tens of thousands of haploid forms, called merozoites, per liver cell. Some malaria parasite species remains dormant for extended periods in the liver, causing relapses week or month later. The merozoites exit the liver cells and re-enters the blood stream, beginning a cycle of invasion of red blood cells, asexual replication, and release of newly formed merozoites from the red blood cells repeatedly over 1-3 days. This multiplication can result in thousands of parasites - infected cell in the host blood stream, leading to illness and complication of malaria that can last from months if not treated. Some of the merozoite - infected blood cells leave the cycle of asexual multiplication. Instead of replicating, the merozoites in these cells develop into sexual forms of the parasite, called male and female gametocytes, that circulate in the blood



stream. When a mosquito bites an infected human, it ingests the gametocytes. In the mosquito guts, the infected human blood further into mature sex cells called gametes. Male and female gametes fuse to form diploid zygotes, which develops into actively moving ookinets that burrow into the mosquito midgut wall and form oocysts. Growth and division of each oocyte produces thousands of active haploid forms called sporozoites. After 8-15 days, the oocytes, releasing sporozoites into the body cavity of the mosquito, from which they travel to and invade the mosquito salivary gland. The cycle of human infection re-starts when the mosquito takes a blood meal, injecting the sporozoites from its salivary gland into the human blood - stream.

Malaria transmission can be reduced by preventing mosquito bites by distribution of mosquito bites by distribution of mosquito nets and insect repellents or by distribution of mosquito -control measures such as spraying insecticides and draining standing water (where mosquito breed). The challenge of producing a widely available vaccines that provides a high level of protection for a sustained periods is still to be met, although several are under development. A number of medications are also available to prevent malaria in travels to malaria - endemic countries.

The propose of this survey is to gather knowledge on the treatment preference and awareness of malaria patients of Duliajan and which can help in planning effective control programme.

2. METHODOLOGY

Sample size : A sample of 100 resident from various age group were surveyed.

Data analysis : Collected data were analysed for prevalence, causes, treatment and awareness.

Period of study and time : The period of study and data collection was from 22.09.2023 to 08.10.2023

Data collection : The survey involved data collection through interviews, questionnaires. The data has been collected through direct interpretation with residents of different localities of Duliajan. The areas/localities for data collection were divided among the group members, according to accessibility.

3. RESULTS

From the questionnaire the following result were obtained:

SL. NO.	QUESTION	RESPONSE
1.	Percentage of people with malaria family case history in the area	Yes% - 14% No% - 86%
2.	Total no of people that have suffered from the disease	21
3.	Age group of people with case history	Below 10- Nil 10-20 : 7 20-30 : 4 30-40 : 6 40-50 : 3 50-60 : 1
4.	No of fatal cases	2
5.	Percentage of families familiar with the concept of malaria	97%
6.	Percentage of family seeking treatment or are inclined to do so	Seeking treatment-73% Inclined to seek treatment - 27%
7.	Percentage of people preferring different treatment methods	Allopathy-58 % Homeopathy-33% Ayurvedic-30% Traditional-27 % Religious-9 %
8.	Percentage of people to prefer use of traditional medicine in future	27%
9.	Percentage of success rate of traditional medicine	21%
10.	Rate of recurrence of disease after treatment with traditional medicine	2%



From the few data that were obtained from traditional medicine providers that were willing to share their knowledge, the following ways of treatment were recorded:

Medicine/food/ingredient used	Number of families	Benefits/way of treatment
Ginger tea	14	People suffering from malaria may experience symptoms like nausea and vomiting that why ginger tea may be effective against these symptoms.
Dry Dandelions leaf	4	Dandelion leaves increase the amount of urine in our body and also improve the immune system that why dandelions leaf benefits for malaria treatment.
Dried Bombay duck	10	It improves your heart health.
Sewali leaves	2	It alleviates malaria fever and helps to reduce the parasite concentration in the body. The leaves also reduce inflammation caused by malaria.
Turmeric	6	It may help those who suffering from malaria recover fast, there are many ways to use turmeric. We can put turmeric in a glass of milk to get benefits. We can also put turmeric in our food and dishes.
Cinnamon	4	We can use cinnamon as a powder. We can take the powder with a glass of warm water. We can also add a pinch of powdered black paper & honey to enhance the taste.
Neem	15	We can drink Neem tea or chew fresh Neem leaves to get its ant malaria effects. To make team tea, boil a glass of water, add some Neem leaves to the boiling water. We can also flavour it with honey & it's ready to serve.

DISCUSSION AND CONCLUSION

From the study, it was observed that treatment providers of the locality use certain commonly available local ingredients for their medicinal properties. Ginger (*Zingiber officinale*) is rich in various chemical constituents, including phenolic compounds, terpenes, polysaccharides, lipids, organic acids, and raw fibre. Dandelion leaf (*Taraxacum officinale*) is reported to have anti-diabetic properties that are attributed to bioactive chemical components including chicoric acid, taraxasterol (TS), chlorogenic acid, and sesquiterpene lactones. Bombay duck (*Harpadone hereus*) is rich in calcium, phosphorus, iron, potassium. Sewali leaves (*Nyctanthes arbortristis*) contains phenylethyl alcohol which control the cold fever/chill fever. Various findings also suggest that neem (*Azadirachta indica*) seeds or leaves show promise as a potential treatment for inhibiting the malaria parasite.

Through this survey of 100 families we learned that about 92% of the people are aware of Malaria infection and about 8% people were not aware about this disease. Among 100 families only 27 % people had suffered from this disease and only 2% of these cases were fatal. The preference of allopathy medicine is 58%, homeopathy 33%, ayurvedic 30%, religious 9% and only 27% people prefers traditional medicine. This might be due to the fact allopathy, homeopathy and ayurvedic medicine are easily available in the area and traditional medicine practices is done only in under developed areas. Through



this survey we learned about some traditional medicine which are used during the treatments of malaria. We think that it is our responsibility to make the people aware about malaria disease and explore more about the traditional medicine practices and their efficacy.

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Artificial Intelligence and the Evolution of Language Models: A Dual Perspective on Technology, Applications, and Ethics

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ABSTRACT

This paper presents a comprehensive analysis of artificial intelligence (AI) and large language models (LLMs), offering a dual-layered exploration of foundational technologies and their expanding influence across sectors. The first segment outlines the general landscape of AI, tracing its development from rule-based systems to sophisticated neural architectures, while highlighting real-world applications in education, healthcare, finance, and agriculture. The second segment shifts focus to the mechanics of LLMs, including transformer architectures, tokenization, and emergent abilities, using examples such as GPT-4 and Google's PaLM. By comparing both the conceptual and technical domains, this paper aims to provide a unified yet multi-perspective insight into AI's present capabilities and future implications. Ethical considerations such as algorithmic bias, misinformation, and AI governance are addressed in detail. The work integrates recent empirical data, academic references, and theoretical reflections, offering a timely contribution to ongoing AI discourse.

Keywords: Artificial Intelligence (AI), Large Language Models (LLMs), Machine Learning and Neural Networks

INTRODUCTION

Artificial Intelligence (AI) has emerged as one of the most transformative forces of the 21st century, altering how we live, work, and interact with technology. Originally envisioned as a field that sought to mimic human intelligence through rule-based systems, AI has evolved into a

multifaceted discipline powered by advanced machine learning algorithms, neural networks, and natural language processing (NLP). With the advent of large-scale computational resources and the exponential growth of data, AI systems have grown increasingly sophisticated, moving from narrow, task-specific tools to general-purpose systems capable of performing a wide array of complex functions.

Parallel to the general evolution of AI is the rise of Large Language Models (LLMs), which represent a paradigm shift in the field of natural language understanding and generation. These models, exemplified by systems like OpenAI's GPT-4, Google's PaLM, and Meta's LLaMA, leverage billions of parameters trained on diverse text corpora to generate human-like language with unprecedented fluency and contextual accuracy. LLMs have found applications across numerous domains, including content creation, customer support, coding assistance, and even medical consultation. Despite their capabilities, these models present novel challenges, particularly in areas such as ethical deployment, bias mitigation, transparency, and alignment with human values. This paper presents a dual-perspective exploration. The first part offers a foundational overview of AI's core concepts, architecture, and real-world applications, highlighting its integration across education, healthcare, finance, and agriculture. The second part delves into the architecture, functioning, and societal impact of LLMs, providing an intuitive yet technically grounded account of their mechanisms and limitations. By treating these themes both independently and in



relation to each other, the paper aims to provide a cohesive and comprehensive account of how AI and LLMs are shaping the digital and cognitive landscapes of our era.

FOUNDATIONS OF ARTIFICIAL INTELLIGENCE

Overview of Artificial Intelligence

Artificial Intelligence (AI) is the simulation of human intelligence processes by machines, particularly computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions), and self-correction. Historically, AI began with symbolic approaches and expert systems in the mid-20th century and has evolved into a field dominated by machine learning (ML), deep learning, and neural networks. AI is now embedded in various domains, from autonomous vehicles and voice assistants to recommendation engines and predictive analytics.

Machine Learning and Neural Networks

Machine learning (ML) is a subset of AI that enables systems to learn and improve from experience without being explicitly programmed. It utilizes statistical techniques to enable computers to learn patterns in data. Neural networks, inspired by the human brain, are a key part of ML. They consist of layers of interconnected nodes (neurons) that process input data to recognize patterns and make predictions. Deep learning, a more advanced form of neural networks with many hidden layers, powers modern applications such as image recognition, natural language processing, and autonomous driving. Popular architectures include convolutional neural networks (CNNs) for image tasks and recurrent neural networks (RNNs) for sequential data. Transformers, a more recent architecture, are particularly powerful for language modeling tasks. The applications of AI in some key sectors are listed below:

- ◆ In education, AI enables personalized learning by analyzing student data and adapting content accordingly. Intelligent tutoring systems, automated grading, and content recommendation are common use cases. According to UNESCO

(2023), AI-enhanced tools have improved learning outcomes in under-resourced areas by 30%.

- ◆ In healthcare, AI assists in diagnostics, treatment recommendations, and patient monitoring. AI-driven tools analyze medical images with higher accuracy than traditional methods in some cases. AI systems like IBM Watson have been used to suggest cancer treatment options based on patient data and medical literature. A study published in *Nature* (2021) showed AI outperforming radiologists in detecting breast cancer from mammograms.

- ◆ AI in agriculture supports precision farming through drone-based monitoring, automated irrigation, and crop disease detection. Machine learning models predict weather patterns, soil quality, and optimize resource usage. For example, Microsoft's AI for Earth project uses satellite data to improve agricultural decision-making.

- ◆ In finance, AI algorithms are widely used for fraud detection, algorithmic trading, and customer service. AI can analyze market trends and manage risks more effectively than traditional models. JP Morgan's COIN platform, for instance, reviews legal documents faster than human lawyers, saving over 360,000 hours annually.

DEMYSTIFYING LARGE LANGUAGE MODELS

Understanding Large Language Models

Large Language Models (LLMs) are deep learning models designed to understand and generate human-like text. These models are trained on massive datasets and use billions of parameters to capture linguistic nuances and contextual relevance. They rely on probabilistic language modeling, which estimates the likelihood of a word or sequence of words following a given text prompt.

Tokenization and Word Embeddings

Before processing, LLMs convert text into tokens-basic units that may represent words or subwords. Each token is then transformed into a high-dimensional vector using embedding layers. These vectors preserve semantic relationships; for instance, the vectors for 'king' and 'queen' will be close in this space.

The Transformer Architecture

Transformers, introduced by Vaswani et al.



(2017), form the backbone of most modern LLMs. Unlike sequential models, transformers process all tokens simultaneously using self-attention mechanisms, allowing them to understand context more effectively. Self-attention calculates the relevance of each word to every other word in a sentence, enabling models to prioritize important information.

Training and Scaling LLMs

Training LLMs involves optimizing billions of parameters on vast corpora, often requiring weeks of computation on large GPU clusters. Models like GPT-4 reportedly use over 100 trillion parameters and are trained on datasets encompassing books, websites, and academic texts. Larger models tend to exhibit 'emergent behaviors'-capabilities like code generation or multi-language translation that arise without explicit training.

Limitations of LLMs

Despite their strengths, LLMs do not possess true understanding. They generate responses based on learned patterns rather than reasoning or world knowledge. Limitations include hallucination (confidently stating incorrect facts), context limits, and biases learned from data. They are also resource-intensive and raise environmental concerns due to high energy consumption.

Ethical Implications and Responsible AI

The deployment of LLMs raises several ethical concerns. These include the perpetuation of social biases, generation of harmful content, misinformation, and potential job displacement. OpenAI, Google, and Meta have all published guidelines and technical reports highlighting these risks and calling for ethical AI development practices.

FUTURE DIRECTIONS

General Artificial Intelligence and Multimodal Models

While current AI models are narrow and specialized, research is progressing toward Artificial General Intelligence (AGI)-a system capable of performing any intellectual task a

human can. Multimodal models, like OpenAI's GPT-4 with vision, can process and integrate text, images, and other data types, moving closer to AGI.

Policy, Transparency, and Public Trust

Ensuring safe deployment of AI technologies necessitates public policy frameworks and international cooperation. Governments and organizations such as the European Union and OECD have proposed AI Acts and ethical guidelines. Transparency in training data, model behavior, and accountability will be vital to sustaining public trust.

CONCLUSION

Artificial Intelligence and Large Language Models are revolutionizing modern computation and human interaction with machines. While AI provides the framework, LLMs bring human-like language processing to life. These technologies have proven impactful across industries, from automating workflows to advancing knowledge. However, the ethical and societal implications of such systems must not be overlooked. By deepening our understanding and guiding their development responsibly, we can harness their full potential while mitigating risks.

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From City Killer to a Harmless Passer by : An analysis of the journey of YR4

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ABSTRACT

The purpose of this paper is to analyse the Journey of the asteroid YR4 dubbed the city killer by many experts. The author seeks to present a case study of the various events associated with the said asteroid from the discovery of the asteroid leading up to the latest updates by the various space agencies. All the data regarding this paper has been acquired from the websites of space agencies such as NASA, ESA etc. The Limitation of this study is that all the information is taken from Dec. 2024-Feb, 2025 and the citations are taken from Google Scholar only. This study will be helpful for anyone looking for a timeline of the events associated with the asteroid YR4 how it was named the city killer and later classified as a non-threat under latest developments.

Keywords: YR4, city-killer asteroid.

INTRODUCTION

The asteroid YR4 was discovered by the Asteroid Terrestrial-impact Last Alert System (ATLAS) Rio Hurtado on December 27, 2024. ATLAS is a NASA-funded initiative designed to detect and track near Earth objects. The ATLAS team identified the asteroid during a routine survey of the sky, leveraging their advanced telescopes to capture high quality images and sophisticated software to detect moving objects. Upon confirming the discovery the ATLAS team promptly informed the NASA Center for Near Earth Object Studies (CNEOS), the international Astronomical Union's Minor Planet Center and other relevant authorities and space agencies. This timely notification enabled further observations following which a deeper observation and analysis was done to properly grasp the threat

level of the asteroid to earth by determining its path. The following is a breakdown of the discovery process :

◆ Discovery Method :

2024 YR4 was identified through the survey project ATLAS designed to detect and track asteroid within Earth's orbit.

◆ Observations :

After detection, NASA's Centre for Near Earth Object Studies at the Jet Propulsion Laboratory performed initial observation calculations to determine the asteroid's orbit. Additionally, astronomers gathered more data using ground-based telescopes and observing facilities, such as the Gemini South/Gemini Multi Object Spectrograph and the Keck/Multi-Object Spectrometer For Infra-Red Exploration.

INITIAL RISK ASSESSMENT :

Asteroid 2024 YR4 was first reported on Dec 27, 2024 to Minor Planet Center the international cleaning house for small-body positional measurements - by the NASA-funded Asteroid Terrestrial-impact Last Alert System station in Chile. The asteroid which was estimated to be about 130 to 300 feet wide, caught astronomers' attention when it rose on the NASA automated Sentry list on Dec 31, 2024. The Sentry list includes any known near-Earth asteroids that have a non-zero probability of impacting Earth in the future.

On Dec 2024 NASA's analysis of a near-Earth asteroid, designated as 2024 YR4 indicated that it had a more than 1% chance of impacting the earth on Dec 22 2032 - which also meant that there was about a 99% chance that the said asteroid would not hit Earth. On Jan 27 2025 it was assigned an impact rating of 3 on the Torino scale.



The Torino Scale :

The Torino scale is a colour coded advisory system that enables near-Earth object researchers to place objects within a potential threat range from zero to place objects within a potentials treat range from zero where there is virtually no chance of collision, to 10 where global catastrophe is certain. It was first adopted in 1999 by a working group of of international Astronomical Union(IAU) at a meeting co-sponsored by The Planetary Society in Torino, Italy. In 2005 Astronomers revised the Torino scale to make it easier for the general public to understand.

As evident from the Figure 1, a level 3 rating on the Torino scale meant a close encounter meriting attention by astronomers. Current calculations give a 1% or greater chance of collision capable of localized destruction. Most likely, new telescopic observations will lead to the risk assessment to level 0. Attention by public officials is merited if the encounter is less than a decade away. It is to be noted that since orbits are unstable and can change the above scale only applies to potential objects less than one hundred years in the future. The diagram above shows the different Torino scale categories , with a logarithmic scale on both axes.

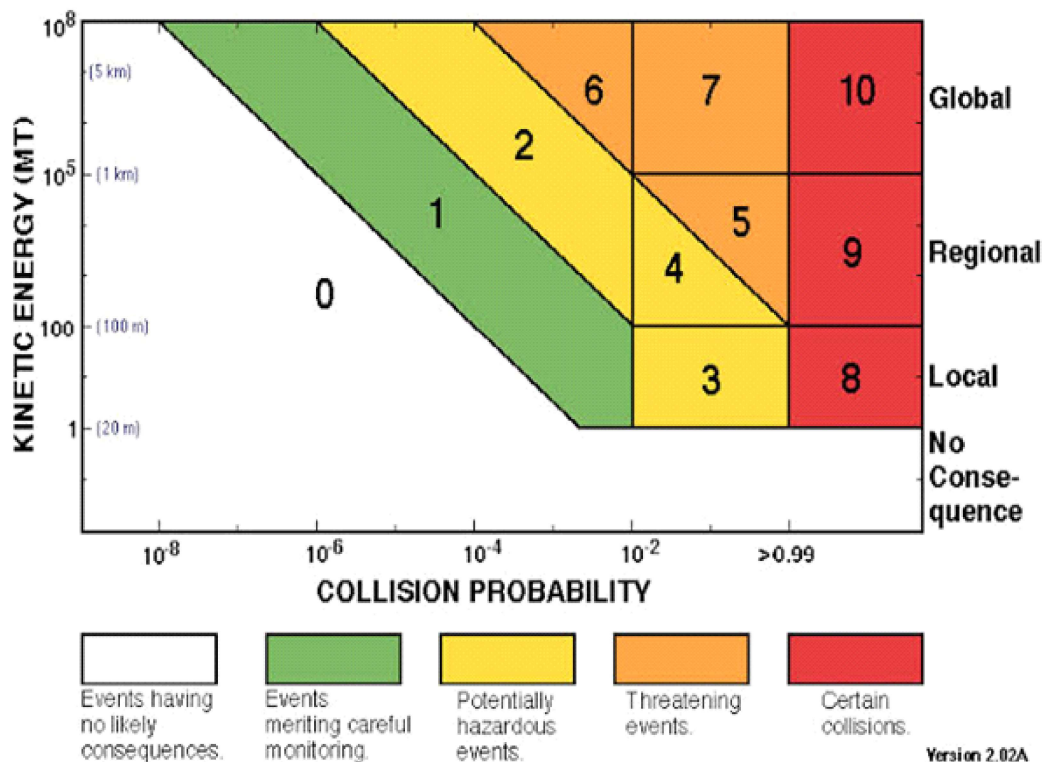


Fig. 1: The Torino scale

Further developments : A potential city killer ?

All the data collected as of January 2025 still left arguable space to as whether the asteroid YR4 posed a significant threat to parts of Earth and since it was the week of full moon it was harder for ground based telescopes to detect the faint glow of light left by the asteroid therefore further observations couldn't be made yet. However after full moon the skies became darker therefore it became easier for astronauts to observe YR4 hence further observations were made regarding the asteroid YR4.

NASA's Center for Near-Earth Object Studies at the agency's Jet Propulsion Laboratory in Southern California then incorporated the new observations reported to the Minor Planeted center and on Feb 18, updated the impact probability of asteroid 2024 YR4 in Dec 2023 to 3.1% . This was the highest impact probability NASA had ever recorded for an object this size or larger.

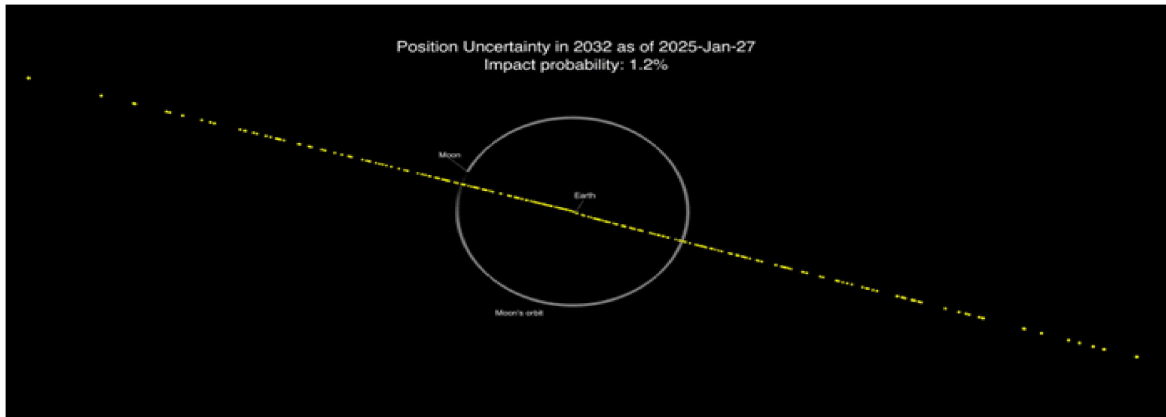


Fig. 2: Graphic of all the possible locations of 2024 YR4 on Dec 22, 2032 as of Jan 27, 2025 Earth is close to the center of the white circle, which represents the Moon's orbital path. Credit: NASA JPL/CNEOS

Final Developments : From City Kiler to Harmless visitor.

Although YR4 was attributed an impact probability of 3.1% on Feb 18 2025 but further data collected made from observations made on 19 - 20 Feb decreased the impact probability of YR4 on Dec 22, 2025 from 3.1% to 1.5% and then to 0.28% and therefore it was finally declared that YR4 no longer posed a threat of hitting Earth. However NASA stated that the planetary defense teams will continue to monitor the asteroid to improve the predictions of the asteroid's trajectory.

The Aftermath :

The emergence of the asteroid 2024 YR4 has highlighted the importance of the development of planetary defense systems. Projects like ATLAS, CNEOS etc were pivotal in making observations, data collection and calculations thus emphasized the need for further investments in such projects

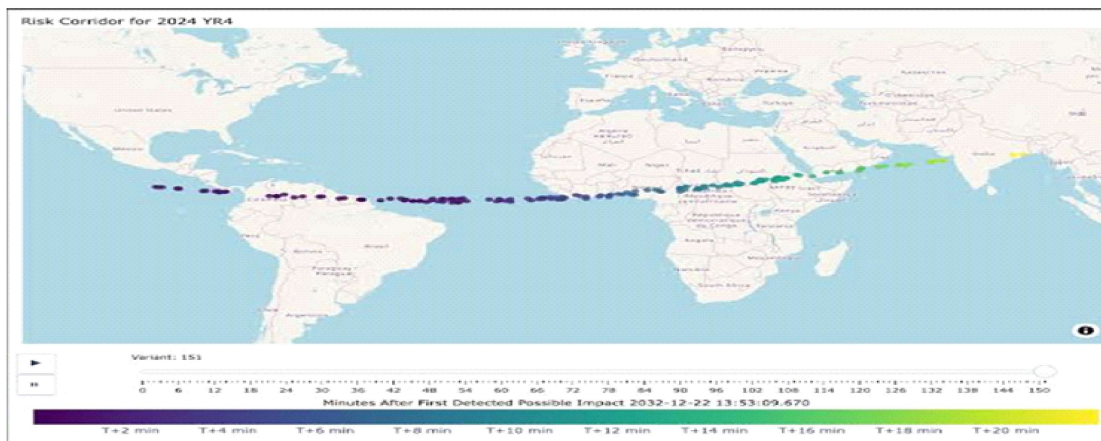


Fig.3: Potential impact points of YR4 on Dec 22, 2032. Credits: ASTEROID INSTITUTE

Additionally the potential risk posed by asteroid prompted countries like China to establish a planetary defense force. The initial risk assessment of 2024 YR4, which had a 2.2% chance of impact in 2032, triggered China's decision to form a dedicated team to monitor and potentially deflect asteroids. Also it again forced experts to think of the possibilities of investing in active planetary defense technologies where if in the distant future any asteroids were to collide with Earth they could be deflected by firing rocket projectiles on the asteroid thus deflecting its path.



Moreover while YR4 is no longer at risk of colliding with Earth, it is still a small but increasing possibility that the said asteroid could hit the Moon on Dec 22,2032 which has become point of scientific interest particularly for planetary defense efforts. Therefore the asteroid's size and trajectory are being closely monitored using ground-based telescopes and NASA's James Webb Space Telescope.

CONCLUSION:

The main purpose of this study was to present a case study of all the events that were associated with the asteroid 2024 YR4. This study also displays the events following the discovery of the asteroid and also the effects and aftermath.

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Sustainable Solid Waste Management: Challenges, Innovations, and Policy Recommendation-A case study of Duliajan

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ABSTRACT

Solid Waste Management (SWM) is a growing global concern, with improper disposal leading to severe environmental and health consequences. This study explores the challenges associated with Duliajan township waste generation, particularly the rising presence of microplastics in agricultural and soil, which pose significant risks to human health and biodiversity. Key solutions such as the Reduce, Reuse, recycle (RRR) principle, composting, and pre-treatment of waste are analysed for their potential to minimize landfill dependency and resource depletion. The study also emphasizes the importance of policy interventions, community engagement, and technological advancements, including AI and IoT (Internet of things), to optimize waste collection, segregation, and recycling processes. This paper provides strategic recommendations to enhance SWM systems, ensuring a cleaner and more resilient future.

Keywords : Wastemanagement, Corporate Social Responsibility (CSR), Community Engagement, survey, Sustainable Development Goals (SDGs), Green Initiatives, Environmental Conservation

1. INTRODUCTION

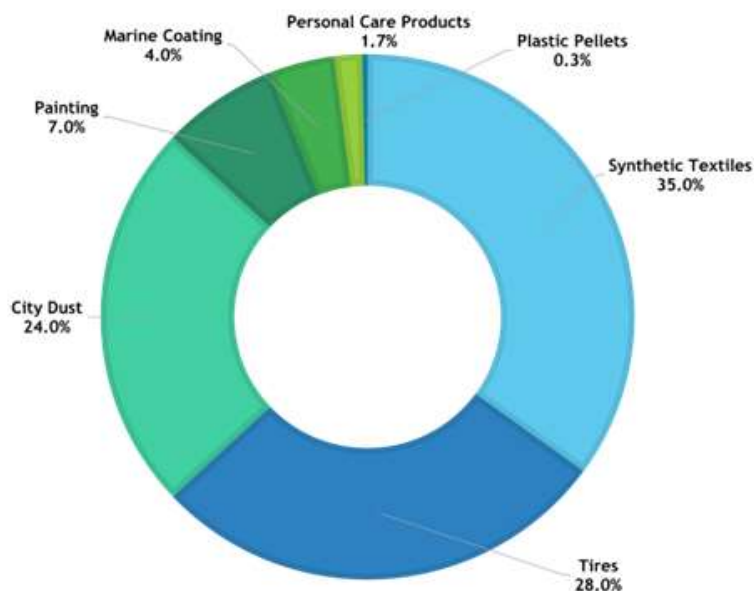
1.1. Overview

Waste is one of the most pressing issues of the present time. Its effects seem so drastic that concerns about its proper management are raising questions around the globe. Current estimates

suggest that there are 1.5 - 6.6 million tons of microplastics minutely reduced forms of non-biodegradable solid wastes in the world's agricultural soils, which is one to two orders of magnitude more than the estimated amount in the ocean's surface. The abundance of microplastics in soil varies by land use, with agricultural land having the highest concentration. This high concentration may enter into the food chain and ultimately end up into the human bloodstream. This project work aims to avoid such probable cases to improve life quality and effectively develop more sustainable ways to adapt with the current and upcoming futuristic societal norms.

1.2. Importance

Microplastics in agricultural soil and oceans pose a long-term threat to human health by entering the food chain. Poor solid waste management leads to unsanitary environments and harms local ecosystems. Research suggests microplastic exposure can cause oxidative damage, genetic aberrations, and altered gene activity, raising risks for cancer, genetic diseases, and chromosomal mutations. Studies also indicate potential impacts on female fertility, including impaired ovarian function and hormonal imbalances, leading to conception difficulties. While the immediate dangers of untreated solid waste might seem limited, the long-term consequences could involve unpredictable and incurable diseases and disorders. This could significantly affect human mortality and fertility rates, among other health outcomes.



Understanding the sources of microplastic pollution, as depicted in the accompanying pie chart, is crucial for addressing this growing environmental and health concern and implementing effective waste management strategies.

1.3. Objectives of the Study

With this study we aim to understand more about Duliajan waste management, its management, how it affects the ecosystem and the life flourishing around it and put light on more effective and efficient ways to deal with it without harming the environment to prevent its noxious impact.

2. A CASE STUDY OF DULIAJAN

2.1. About Duliajan

Duliajan is a unique village in the Dibrugarh district of Assam in northeast India. It is also referred to as 'The richest Village of Assam'. Being an oil industrial hub, its rapid urbanization can be visualized by the rapid development of industry and commerce. According to 2022-23 census the estimated population is between 32,061 and 34,924 and total households residing are 6,929 which produces a reasonable amount of solid waste grouped in packing waste, industrial waste, household wastes, and human waste.

2.2. Geographical Location

Duliajan lies at a geographical latitude of approximately 27.3606° North and a longitude of 95.3131° East. The town covers an area of around 14.5 square km and is best known as the headquarters of Oil India Limited, making it a prominent industrial and residential hub. Surrounded by lush tea gardens, oil fields, and small rivers, Duliajan is characterized by a humid subtropical climate with hot summers, significant monsoon rainfall, and mild winters. Its well-planned infrastructure and proximity to towns like Dibrugarh and Naharkatia further enhance its regional importance.

2.3. Solid Waste Management

In Duliajan, bulk solid waste is produced as byproducts through normal and fundamental activities of the people. The growing mass of solid waste produced due to increased population and by rapid industrialization and urbanization creating many environmental problems. Urban waste in open dump



and clogged drains are familiar sight in Duliajan. Many small and large garbage piles could be seen in all nooks and corners of the town. The Township produce up to 30 tonnes of solid waste per day.

3. METHODOLOGY

3.1. Data Collection Techniques (Surveys, Field Visits, Interviews)

For collection of Data, we have visited different unauthorised dump sites and different landfills all around our town. We have also interviewed many sweepers working tirelessly to clean these areas. We have also spoken with the people who live near such places where people throw their garbage and note their problems and difficulties. Images of some places are attached below. To strengthen our quantitative analysis, we have integrated a series of data visualizations. These table and charts provide a clear, visual representation of per capita waste generation across different regions, enabling stakeholders to quickly grasp both current and future challenges. Markets have been surveyed and the plastic generated by each shop type in different markets around Duliajan have been calculated and an estimated value has been arranged in a tabular form.

3.2. Tabulated Data

The data collected by surveying all the major markets in the Duliajan township and by further calculation and screening of the data and monthly estimation of kilograms of waste generated by different shops on different markets are given in the table below :

SHOP TYPE	Daily Bazaar	Oil Market	Fancy Bazaar	Bhavani Bazaar	16. No. Tinali Bazaar	Total
Grocery	500	450	480	520	490	2440
Vegetable	300	250	270	320	290	1430
Restaurants	800	750	820	860	790	4020
Pharmacy	150	130	140	160	155	735
Clothing and Footwear	400	350	380	420	390	1940
Stationary	200	180	190	210	205	985
Others	250	220	240	260	230	1200
Total	2500	2330	2520	2750	2550	12650





4. FINDINGS AND DISCUSSION

4.1. Waste handling in Duliajan

The initial disposal methods were just throwing away in open pits outside the town or even roadsides as a result the town is getting under pollution. Damping and burning waste is not an acceptable practice from either environmental or health perspective. The town doesn't have a municipal board but the company oil India limited takes care of the town's cleanliness and manage the solid waste to an extent. Apart from it, in small scale ragpickers and scrap collectors are contributing towards solid waste management. Basically, they pick up or buy the unusable but recyclable materials like thermoplastic glass bottles. Iron scrap etc. they store and segregate and sell it to the recycle houses.

4.2. Reduce, Reuse, Recycle (RRR)

4.2.1. Definition and Concept of 7R

The RRR principle forms the foundation of sustainable waste management. It emphasizes minimizing waste generation, maximizing the reuse of materials, and transforming waste into new products. The 7R approach aims to conserve natural resources, reduce landfill use, and promote

environmental sustainability.

4.2.2. Benefits of 7R for Waste Reduction

RRR is proven to be effective to reduce pollution by minimizing the waste sent to landfill and incinerators. As the materials are reused and put back into the cycle, it's also economically beneficial as extraction of raw material can be scaled down and more jobs can be generated around recycling, reusing and reducing.

4.3. Composting

4.3.1 Definition and Types of Composting

Composting involves the controlled breakdown of organic waste using microorganisms. Despite its long use, limitations like pathogen presence, low nutrients, slow processing, and Odor hinder its efficiency. These drawbacks have led to the increased use of chemical fertilizers, particularly those made via the Haber-Bosch process, as a faster and more reliable alternative for agricultural nutrient needs.

4.3.2. Materials for Composting

Compost is made using mineral-rich materials, mainly classified as green and brown. Green materials include nitrogen-rich items like fruit peels, vegetable scraps, and coffee grounds. Brown materials are carbon-rich, such as dry leaves, twigs, and paper. Other items include eggshells, feathers, and natural fabrics.

4.3.3. Advantages of Composting

Composting offers significant environmental, social and economic benefits. It reduces organic waste sent to landfills, cutting methane emissions that contribute to global warming. Compost improves soil health and water retention, while reducing the need for chemical fertilizers and lowering pollution. Economically, it cuts waste management costs and creates income through compost sales for farming and gardening.

4.4. Pre-treatment of Waste

4.4.1. Importance of Waste Pre-treatment

Pre-treatment involves sorting waste at the source into streams like plastics, glass, paper, and organics. This enhances recycling quality,



simplifies collection, and enables efficient processing into new products, conserving resources and reducing landfill.



4.4.2. Benefits of Pre-treatment in Recycling and Energy Recover

Pre-sorting waste enhances recycling by improving material quality and reducing contamination. This lowers landfill volume,



conserving space and cutting methane emissions. Resource recovery (plastics, metals, glass) is boosted, lessening raw material needs. Waste management costs decrease due to less disposal, and soil/water pollution from untreated waste is prevented. Pre-treatment is vital for a greener, resource-efficient system.

5. RECOMMENDATIONS

5.1. Policy Interventions

Policy interventions in waste management are essential to address the growing challenge of solid waste disposal and its environmental impact. Governments implement measures such as bans on single-use plastics, regulations for proper e-waste disposal, and incentives for adopting recycling technologies and must enforce human power to make people abide by them. For instance, many countries have introduced Extended Producer Responsibility (EPR) policies, requiring manufacturers to improve the lifecycle of their products. Such interventions reduce waste, encourage resource conservation, reduce energy usage for extraction of raw materials, and lower pollution levels. However, the success of these policies often depends on enforcement, infrastructure availability, and public participation. Strengthening these aspects can enhance their effectiveness and promote sustainable waste management practices. In order to bridge the gap between theoretical recommendations and practical implementation, a detailed policy and implementation framework has been developed. This framework outlines specific steps for enacting waste management policies, including:

- ◆ **Timeline and Milestones :** Clearly defined stages for implementation over the next 5-10 years.
- ◆ **Responsible Agencies :** Identification of local, regional, and national bodies accountable for policy enforcement.
- ◆ **Funding and Resources:** Potential funding sources and budget allocations required for infrastructure development.
- ◆ **Performance Indicators:** Metrics to monitor progress, such as waste reduction rates, recycling percentages, and community engagement levels. This framework provides a roadmap for policymakers to transform strategic recommendations into actionable, measurable outcomes.

5.2. Community Involvement

Community involvement is key to successful waste management since communities generate waste. Community-driven pre-treatment enables easy sorting, reducing contamination and improving recycling. Raising awareness fosters ethical disposal and discourages littering. This also simplifies the work of waste pickers and collectors,



aiding their contribution to recycling and their livelihoods. Recognizing socioeconomic factors' importance, this study now includes an in-depth analysis of the economic and social impacts of proposed interventions

5.3. Use of Technology in Waste Management

Technology enhances solid waste management efficiency and sustainability. IoT smart bins and AI optimize collection, cutting costs. Advanced sorting improves recycling accuracy. Mechanical/chemical recycling transforms plastics and e-waste. Data analytics and AI predict waste trends. Blockchain ensures recycling transparency, and apps educate communities. These technologies foster effective management and a circular economy. This study now analyses emerging solutions like IoT sensors, AI sorting and blockchain for greater transparency.

6. CONCLUSION

6.1. Summary of Key Point

Solid waste management demands urgent attention due to its severe environmental, ecological, and health consequences. This study highlights escalating waste of Duliajan, notably microplastics contamination. Analysing past practices and trends, it stresses sustainable solutions like RRR, composting, and pre-treatment to reduce landfill reliance and pollution. Policy interventions (single-use plastic bans), community engagement in segregation and technological advancements (IoT, AI) are crucial for optimized systems. The findings advocate for a comprehensive, collaborative SWM approach for environmental sustainability, resource conservation and improved quality of life. Enhanced with concise section summaries and an executive summary, the report ensures key findings and actionable insights are readily accessible for stakeholders.

6.2. Final Thoughts

In conclusion, while community involvement is vital for effective Solid Waste Management (SWM), the active engagement of government authorities and policymakers is equally crucial. In

India, there's often a tendency to prioritize symbolic projects over essential needs like waste management and infrastructure. By shifting focus towards strengthening these foundational aspects, the government can ensure sustainable societal benefits. This balanced approach would improve quality of life, contribute to genuine progress, and demonstrate a commitment to long-term growth and environmental responsibility.

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