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UBSDER 1st INTERNATIONAL CONGRESSES

•Keynote & Invited Participation type

DATE – PLACE

*FEBRUARY 26-28, 2021
JAKARTA – ENDONEZYA*

ORGANIZATION

*UBS International Scientific Research
and Strategy Development Association*

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All applications have undergone a double-blind peer review process.

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Oral presentation

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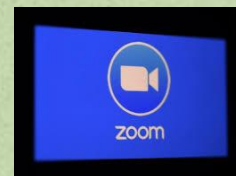


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**CONGRESS PROGRAM
Online (with Video Conference) Presentation**

Meeting ID: 860 2365 5984

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28.02.2021		HALL: 1	SESSION: 1
Meeting ID: 860 2365 5984		Passcode: 282021	
	10:00 – 12:00	MODERATOR: ASST PROF BORIS MIHAYLOV	
Authors	Topic title		
URFEYA MIRZA UIASE BIN FAROOQ SHAHNAZ ANJUM D. M. MAKHDOOMI	Bovine Abdominal Ultrasonography		
UIASE BIN FAROOQ URFEYA MIRZA SHAHNAZ ANJUM ADARSH KUMAR	Ultrasonographic Diagnosis of Acute Abdomen in Equines		
ANANDA MAJUMDAR	Narrative of the Tribal Women and Community in Tripura: A Gender Perspective		
DR. MONISA QADIRI UMER IQBAL DR. ASIFA MEHRAJ BABA	Exploring Evolution of Online Teaching-Learning Approaches due to Covid-19		



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RICO PAULO G. TOLENTINO MARINELLE S. DOMINGO JOY EDILAINE R. HANDIG ABIGAIL E. PENGSON	Emerging Teaching And Learning Paradigm: Determination Of Pedagogical Changes In Higher Education Through Lived Experiences Amidst Pandemic
M K GANESHAN	Big Data Analytics In Information Technology
MEHMET SAIT CENGIZ ÇIĞDEM CENGIZ	Use Of Direct And Semi-Indirect Lighting In Tunnel Lighting For Tourism Purposes
MEHMET SAIT CENGIZ ÇIĞDEM CENGIZ	Design And Road Luminance Relationship In Tunnel Lighting
JAMAL-ELDIN F. M. IBRAHIM EMESE KUOVICS MOHAMMED TIHTIH LÁSZLÓ A. GÖMZE	In Situ Synthesis and Characterization of Mullite-Based Ceramic Composites



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Emerging Teaching and Learning Paradigm: Determination of Pedagogical Changes in Higher Education Through Lived-Experiences Amidst Pandemic

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ABSTRACT

The educational systems worldwide have been affected by the COVID-19 pandemic, leading to the almost total closure of many schools. Most governments around the world have temporarily ceased face-to-face interactions. UNESCO encourages the use of distance learning programs and accessible educational resources that can be used by schools and teachers to access students remotely. In the Philippines, the resumption of classes has been delayed for four months in preparation for distance learning. Online learning has become a crucial lifeline for educators as schools seek intervention to reduce the risk of massive virus transmission. Colleges and universities in the Philippines adapt to the concept of remote teaching and distance learning, it is all new and unique for most of all, as what the world has today is distance learning in the middle of a pandemic. This study comes up with the following objectives: identify the teaching strategy adjustments made by the teachers to adapt to the abrupt paradigm shift in education; gather significant stories to determine the issues, challenges, and best practices experienced by teachers and learners in remote teaching and learning modality; determine significant changes in the learning process and its environment; establish paradigm on teaching and learning based on the conscious experiences of the learners and teachers. This paper would like to share a new instructional paradigm from the actual scenario of higher education in a local college, a state college, and a private university. Moreover, this study would contribute as a reference to any pedagogical innovation in education.

Keywords: Remote teaching; pedagogical changes; teaching and learning paradigm.



Exploring Evolution of Online Teaching-Learning Approaches due to Covid-19

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Abstract

We live within the era of tools and technological revolutions. The urge for moving towards technology with passion, innovation and creativity has showed us a brand-new world. The innovations have led people to try to do things easier with quality accuracy than manually. Almost every human life uses the technology to survive and to measure and also the universe is running within the ambit of technology instead of an individual's brain. It's being adopted by all and varied no matter religion, region, and literate, illiterate. After the outbreak of Covid-19 pandemic, and continuous lockdown forced all institutions to shut to spread prevent of the virus. In response thereto, online education through Education apps was adopted by the entire world as a response to fill the gap or the void created because of closure of educational institutions.

This research paper employs both quantitative and qualitative approach to check the insights of students and teachers on online teaching-learning approaches. The importance of this paper is to draw a whole picture of ongoing online teaching-learning activities during the lockdown period. This research paper also aims to stipulate the importance of manual teaching-learning process in education system and to beat the persisting academic disturbance and make sure the resumption of educational activities as a traditional course of procedure within the education system.

This research also examined the impact of technological apps over the way students and teachers' view online teaching. This research examined how students use Education apps within the most affected region- say Jammu and Kashmir of India, by ways of shutdowns post abrogation of special status (Article 370) and covid-19 pandemic run off and the way they incorporate these new technological innovations as essential tools for online learnings.



Big Data Analytics In Information Technology

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ABSTRACT

Big Data is the present day, the newest buzzword around, and with the quantity of data being generated every minute by clients, and businesses universal, there is enormous value to be found in Big Data analytics. Companies are starting to realize the importance of data accessibility in bulky amounts in order to make the right decisions and sustain their strategies. With the enlargement of new technologies, the Internet and social networks, the making of digital data is continuously growing. The word "Big Data" refers to the assorted mass of digital data formed by companies and individuals whose characteristics as large volumes, unusual forms, speed of dispensation requiring particular and increasingly complicated computer storage and analysis tools. Internet data requirement per day 1 PB Facebook data per day, 500 M tweets per day (200 B tweets/ year), and Google processes 24 PB day. In this studies collected as secondary data only. This article intends to describe the concept of big data analytics; tools, information technology, futures, applications, as well as the importance of big data analytics. Visual data information innovation tools will be growing 2.5 times faster than take it easy of the Business Intelligence marketplace. This investing in this enabler of end user identity service will turn into a necessity for all organization and industry.

Keywords: information, internet, security, storage

I. INTRODUCTION

The word "big data" was first used to pass on to increasing data volumes in the mid-1990s. In 2001, Doug Laney, then an analyst at consultancy Meta Group Incorporation stretched the meaning of big data. This extension described the increasing volume of data being stored and used by organizations, the variety of data being generated by organizations, and velocity, or speed, in which that data was being formed and modernized. Those three factors became recognized as the 3 Vs of big data. Gartner popularized this model after acquiring Meta Group and hiring Laney in 2005. Additional major development in the past of big data was the initiate of the Hadoop distributed processing framework. Hadoop was introduced and presented as an Apache open source project in 2006. This planted the seeds for a clustered



proposal built on top of product hardware and that could run big data applications. The Hadoop framework of software tools is commonly used for organization big data. By 2011, big data analytics began to take a rigid hold in organizations and the public eye, subsequently with Hadoop and various related big data technologies. Initially, as the Hadoop network took form and in progress to established, big data applications were generally used by large internet and e-commerce companies like Yahoo, Google, and Facebook, as well as for analytics and marketing services providers. Newly, a broader diversity of users has embraced big data analytics as a key technology driving digital transformation. Most utility consumers are retailers, financial services firms, insurers, healthcare organizations, manufacturers, energy companies, and other enterprises.

The digital data produced is partly the result of the use of devices connected to the Internet. Therefore, smartphones, tablets, and computers transmit data about their users. Connected smart objects convey information about consumers' use of everyday objects. Apart from the connected devices, data come from a wide range of sources: demographic data, climate data, scientific and medical data, energy consumption data, etc. All these data consist of information about the place of users and their devices, their journey, their benefit, their utilization habits, their spare time activities, and their projects, etc. But also information on how the infrastructure, machinery, and apparatus are used. In the company of the rising digit of Internet and mobile phone utilize persons; the size of digital data is increasing quickly.

II. OBJECTIVE OF THE STUDY

1. To study recent technology and work areas of big data analytics
2. The importance of big data analytics in human and information industry.
3. The main role of big data in information technology
4. To study the future of big data analytics in information technology

III. BIG DATA ANALYTICS

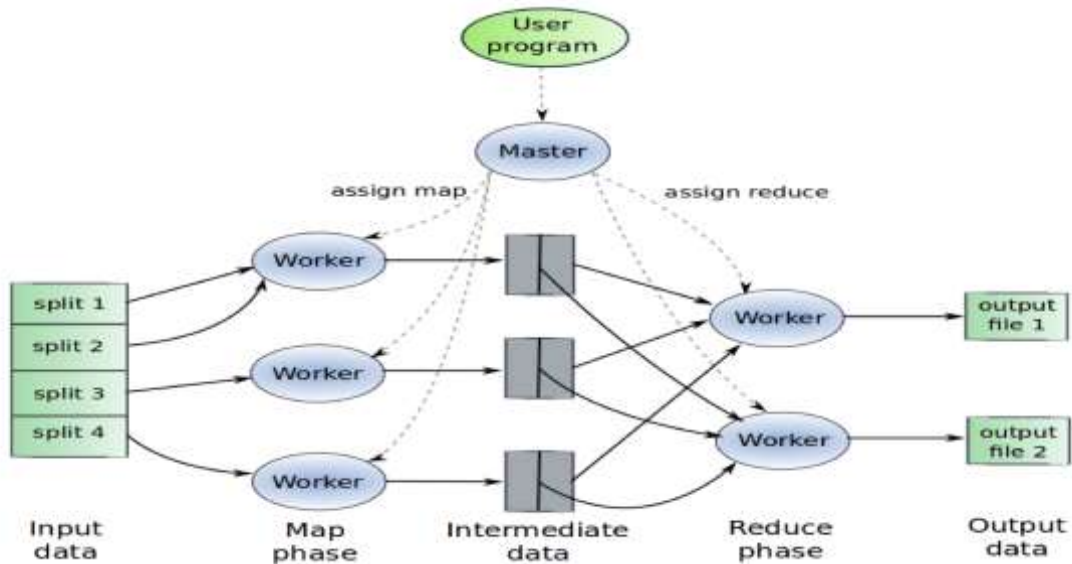
Big data analytics is the regularly complicated process of investigative big data. It also uncovers information such as hidden patterns, correlations, market trends, and customer preferences. It can help the industry make knowledgeable business decisions and supports. On a large scale, data analytics technologies and techniques give industries a way to analyze data sets and collect new information. Business intelligence queries answer fundamental questions about business operations and performance. Big data analytics is an outline of advanced technology analytics, which involves complex applications with elements such as

predictive models, statistical algorithms, and analysis powered by analytics systems or information.

Big Data normally refers to data that exceeds the distinctive storage, processing, and computing capability of predictable databases and data analysis techniques. As a store, Big Data requires tools and methods that can be practical to investigate and take out patterns from large-scale data. The study of structured data participated due to the diversity and velocity of the data handle or control. Therefore, it is no longer sufficient to analyze data and create reports, the extensive variety of data way that the systems in place must be capable of supporting in the analysis of data. The analysis consists of automatically determining, within a variety of rapidly changing data, the correlations between the data in order to help in the exploitation.

Big Data is definite as data that is enormous and massive in size. Big data is a word used to explain a collection of data that is vast in size and yet growing exponentially with occasion or time. Big Data analytics examples contain stock exchanges, social media sites, jet engines, etc.

Figure 1.1 Big data work



(Source: Secondary data)

Figure 1.2 Growth of big data



Figure 1. Current and forecasted growth of big data. Source: Philippe Botteri of Accel Partners, Feb. 2013.

(Source: secondary data)

3.1 INFORMATION TECHNOLOGY

One of the largest users of Big Data, information technology companies around the world are using Big Data to optimize their performance, improve employee output, and reduce risks in business activity, and operations. In the combination of Big Data technologies with machine learning and artificial intelligence, the information technology sector is frequently powering innovation to discover solutions still for the most difficult of problems.

3.2 FUTURE OF BIG DATA

Data volumes will continue to increase and transfer to cloud technology. Most of big data experts have the same opinion that the amount of generated or created data will be growing regularly and exponentially in the future aspect. In Data Age 2025 information for Seagate, IDC prediction the global datasphere will get to 175 zettabytes by 2025.

Every minute of every day big data we used some of points given below

- ❖ More than 204 million email messages.
- ❖ Over 2 million Google search queries.
- ❖ 48 hours of new YouTube videos.
- ❖ 6, 84,000 bits of content shared on Facebook.
- ❖ More than 100,000 tweets.
- ❖ \$ 272, 000 spend on e-commerce

Table 1.1 TYPES OF BIG DATA

Different Types of Data	
Structured data (Relational, Tables)	Typical Operations:
Semi Structured Data (XML, JSON, Log files)	Aggregation & Statistics
Unstructured Data (Free Text, WebPages)	Data warehouse, OLAP
Graph Data (Social Network, Semantic Web)	Index, Searching, Querying
Streaming Data Typical Operations	Keyword bases search
Graph Data (Social Network, Semantic Web)	Pattern matching
Streaming Data	Knowledge discovery
	Data Mining
	Statistical Modeling

(Source: Secondary data)

3.3 IMPORTANCE OF BIG DATA ANALYTICS

The information technology industry can use big data analytics systems and software to make data-driven decisions that can better business-related output and solutions. The advantage may include a more successful promotion, innovative revenue opportunities, client personalization, and better operational competence. In the company of a valuable tactic, these benefits can provide spirited advantages over rivals.

Table 1.2 Business Intelligence and Advanced Analytics

Business Intelligence VS Advanced Analytics		
Business Intelligence		Advanced Analytics
Answers the questions	<ul style="list-style-type: none"> ▪ What happened? ▪ When? ▪ Who? ▪ How many? 	<ul style="list-style-type: none"> ▪ Why did it happen? ▪ Will it happen again? ▪ What will happen if we change? ▪ What else does the data tell us that we never thought to ask?
Includes	<ul style="list-style-type: none"> ▪ Reporting (KPIs, Metrics) ▪ Automated Monitoring and Alerting(thresholds) ▪ Dashboards ▪ Scorecards ▪ OLAP(cubes, slice, and dice, drilling) ▪ Ad hoc query ▪ Operational and Real time business Intelligence 	<ul style="list-style-type: none"> ▪ Statistical or Quantitative Analysis ▪ Data Mining ▪ Predictive Modeling ▪ Multivariate Testing ▪ Big Data Analytics ▪ Text analytics

(Source: Secondary data)

3.4 BIG DATA ANALYTICS APPLICATIONS

Big data analytics applications frequently incorporate information from both inside frameworks and outer sources, for example, climate data information or segment information on shoppers gathered by outsider data administrations suppliers. Also, streaming examination applications are getting normal in large information conditions as clients hope to perform an ongoing investigation on information taken care of into Hadoop frameworks through stream preparing engine, like Spark, Flink, and Storm.

Early big data practices were generally sent on-premises, especially in huge associations that gathered coordinated and examined gigantic measures of information. Yet, cloud stage suppliers like Amazon Web Services (AWS) and Microsoft, have made it simpler to set up and oversee Hadoop groups in the cloud. The equivalent goes for Hadoop providers like Cloudera-Hortonworks, which underpins the dispersion of the huge information structure on the AWS and Microsoft Azure mists. Clients would now be able to turn up bunches in the cloud, run them however long they need and afterward take them disconnected with use-based evaluating that does not need continuous programming licenses.

Big data has gotten progressively useful in the store network. Big supply chain analytics uses large information and quantitative techniques to upgrade dynamic cycles across the production network. In particular, big supply chain analytics extends informational collections for the expanded investigation that goes past the customary interior information found on big Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) frameworks. Additionally, large production network investigation actualizes profoundly successful factual techniques on new and existing data information sources.

Figure 1.3 Big Data Analytics use



(Source: Secondary data)



IV. CONCLUSION

Big data refers to the set of statistical data created by the use of new technologies for personal or professional purposes. Big Data analytics is the process of examining these data in order to uncover hidden patterns, market trends, customer preferences, and other useful information in order to make the right decisions. Big Data Analytics is a fast-growing technology. It has been received by the most unforeseen ventures and turned into an industry all alone. But analysis of these data in the framework of Big Data is a process that seems sometimes quite intrusive. Analytics is data science. Business Intelligence takes care of the decision-making part while Data Analytics is the process of asking questions. Analytics tools are used when a company needs to do forecasting and wants to know what will happen in the future, while Business Intelligence tools help to transform those forecasts into common language. More often, Big Data is considered the successor to Business Intelligence. This comparison will be discussed in future work.

V. REFERENCES

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In Situ Synthesis and Characterization of Mullite-Based Ceramic Composites

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Abstract

Ceramic technologies nowadays aim to produce superior ceramic products from relatively inexpensive raw materials to fulfill the optimum cost-benefit relationship. One of the popular techniques to achieve this goal is to prepare ceramic composites materials, which generally show excellent properties and better performance. This research study provides a technical description of the use of natural zeolites in the synthesis of ceramic composite material using mechanical milling and reactive sintering technique. Two commercially available minerals (Natural zeolite from Mád in Tokaj region and MOTIM Al_2O_3) were used as starting raw materials. A comprehensive analysis has been conducted for the detailed characterization of raw materials as well as produced products. The investigation combines the mineralogical examination using X-ray diffraction (XRD) together with chemical constituent determination by (XRF) and thermoanalytical studies using (TG/DTA), heating electron microscope and thermal conductivity analyzer to determine the influence of sintering temperatures on the thermal properties of the produced mullite-based composite materials. Moreover, Several technical properties such as bulk density, apparent porosity, volume shrinkage, and water absorption of the ceramic specimens were characterized using the Archimedes technique. The compressive strength was evaluated via a universal testing machine. The produced composites fired into interesting brown-like colours. The SEM analysis confirms the formation of the mullite whiskers, which is highly connected to the composition percentages and the sintering process. The variation in the different characteristics could be attributed to the samples' physico-chemical reaction and nitridation. Preparation of these kinds of ceramic composites using available and relatively cheap raw materials could lead to the production of economically cost-effect materials with better characteristics.

Keywords: ceramic composites, zeolite, alumina, mechanical activation, reactive sintering



Use Of Direct And Semi-Indirect Lighting In Tunnel Lighting For Tourism Purposes

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ABSTRACT

In this study, lighting indirect and semi-indirect lighting types in tunnel lighting used for tourism purposes has been investigated according to energy efficiency. For this purpose, tourism tunnel lighting has been studied in a simulation environment. Only lighting types were changed so that all physical environment conditions were equal. Direct and semi-indirect lighting types are used in the tunnel. For these two lighting types, energy-efficient lighting design has been chosen by evaluating the illumination level measurements in the simulation environment. Accordingly, the relationship between the type of lighting in the tunnel and the light level distribution was compared numerically with the measurements made. The relationship between lighting type selection and energy-efficient design was compared numerically and the most efficient design was determined.

Key words: Illuminance, Tunnel Lighting, Energy Efficiency

1. INTRODUCTION

The energy consumed for lighting greatly affects the energy consumption used in tunnel and road lighting. Electricity should be used efficiently due to its high production and usage costs [1,2]. Rapid and unconscious consumption of energy resources used today forces human beings to find new alternative energy sources. However, existing energy sources should be used most economically and efficiently. Today, scientific studies are trying to develop new methods to increase energy savings.

For this purpose, many types of research have been conducted on alternative energy sources, especially at the international level recently [3-5]. Most of these studies are about the optimal use of electrical energy and are related to energy saving in lighting systems. The number of studies such as smart lighting systems for energy saving, energy control systems in workplaces, energy-saving design studies in ventilation and road lighting systems, and the use of smart control systems to provide energy control in industrial facilities is increasing.

The basic elements that determine the decisions taken in lighting design are the architectural features and function of the space. The material types used, colors, textures, reflection coefficients, and also physical properties such as the height of the space are decisive in the designer's decisions. Thanks to tunnels and road lighting, people's comfort to see the road is important. A balanced general illumination can be provided with the placement of lighting fixtures with direct light distribution, with correct light angles and appropriate intervals. Indirect light can be used as general or decorative lighting [6-8].

Hidden band-type lighting, which is frequently seen in residences and hotels, is an example of indirect decorative lighting. Low energy efficiency in indirect lighting systems may be a

disadvantage of the system. Because the light source is hidden and the light is reflected from the ceiling or walls, it can result in the use of high lumen output light sources to provide high illumination levels. On the other hand, indirect light does not create annoying shadows or glare and provides a pleasant atmosphere. In this respect, semi-indirect lighting provides an advantage in touristic tunnel lighting [8-10].

Using only direct lighting is a practical solution, but there is a sharp contrast between light and shadows. The ceiling surface of the touristic tunnel road remains dark compared to the ground surface. For this purpose, direct lighting and semi-indirect lighting were compared in this study.

2. TUNNEL LIGHTING DESIGN

The aim of a lighting designer is to always create comfortable, healthy, and beautiful spaces for their users. In this study, direct and semi-indirect lighting systems were used in the design process.

The lighting system chosen improves the visual comfort of an environment. Wrong lighting makes it difficult to see. Starting from the first stage of the design, lighting should be chosen according to the environment. Lighting standards, energy-saving requirements, and user comfort should be taken into account in the decision-making phase.

2.1. Lighting Types in Terms of Energy Resources

1. Natural Lighting is defined as a lighting system designed to meet the visual comfort needs of daylight, the main source of which is the sun. Natural lighting can be seen in Figure 1.

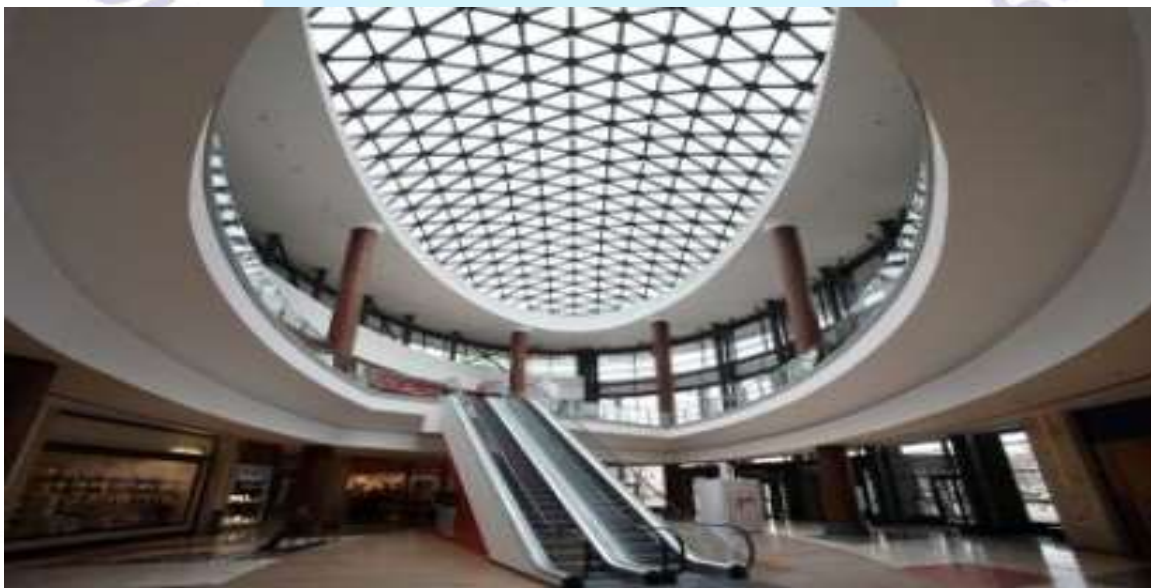


Figure 1. Natural lighting

2. Artificial Lighting is defined as the lighting system designed to meet the visual comfort needs of the light produced from artificial light sources. Artificial lighting is seen in Figure 2.



Figure 2. Artificial lighting

3. Hibrid Lighting is defined as a lighting system in which light is used as a supplementary light in cases where daylight is insufficient to meet visual comfort requirements. Figure 3 shows mixed (artificial and natural) lighting.



Figure 3. Hibrid (artificial and natural) lighting

Artificial Lighting is used for simulation in this study.

2.2. Lighting Design Types

The ratio of light to be used for lighting the area to be illuminated determines the type of lighting. Lighting types according to light distribution;

1. If 90% or more of the light emanating from a light source illuminates the targeted area, this is Direct Lighting. Direct (direct, direct) lighting transports 90-100 percent of the light coming from the lighting fixtures directly to the working plane. It is important to prevent glare that may occur in this type of lighting. Indirect lighting, the ceiling may appear dark depending on the area to be illuminated.

2. Diffuse lighting, 40-60 percent of the light spreads downward and 60-40 percent upward, fixtures such as glass or plastic globes are examples of this type.

3. Indirect (indirect) lighting scatters 90-100 percent of the light upwards. If you can use 20% or less of the light from a light source to illuminate the area you want, it is called Indirect Lighting. The light directed to the ceiling or walls illuminates the working plane indirectly, the risk of glare is low, energy efficiency is lower than direct lighting.

4. If the light from a light source illuminates the desired area between 90-60%, it is called Semi Direct Lighting. Semi-direct (semi-direct) illumination, 60-90 percent of the light is spread downward and 40-10 percent upward.

5. Direct/indirect lighting, the light is emitted directly and indirectly from the ceiling. If you can use 60-40% of the light coming from a light source, Mixed Lighting is applied.

6. If you can reflect 40-20% of the light coming from a light source to the desired area, Semi Indirect Lighting has been made. In semi-indirect (semi-indirect) lighting, 10-40 percent of the light is spread downward and 90-60 percent upward [5-10].

Lighting types according to the light distribution are shown in Figure 4.

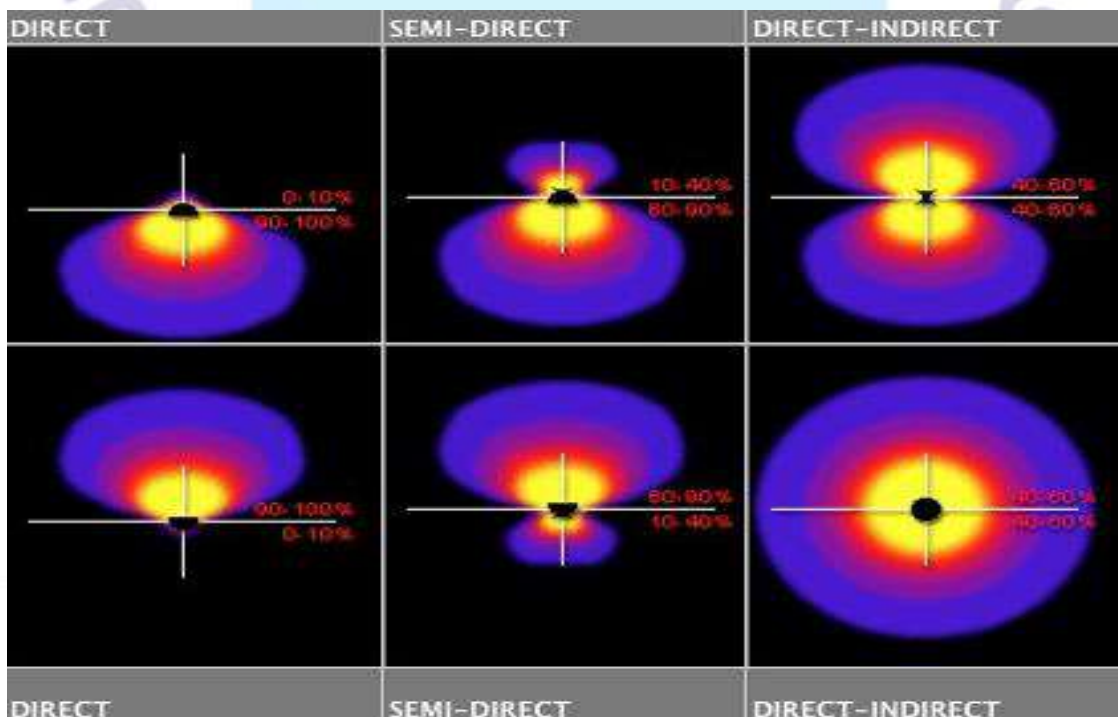


Figure 4. Lighting types according to light distribution

In this study, direct lighting and semi-indirect lighting were used for simulation. These two methods have been compared in terms of energy efficiency.

3. ILLUMINANCE CALCULATION FOR A POINT ON THE SURFACE

The horizontal illuminance level of a point is equal to the sum of the illuminance levels created by all contributing luminaires at that point. In Figure 5, the geometric position of a P point on the road whose illuminance level will be calculated is shown [1-5]. The horizontal illumination level of the P point is shown in equation 1.

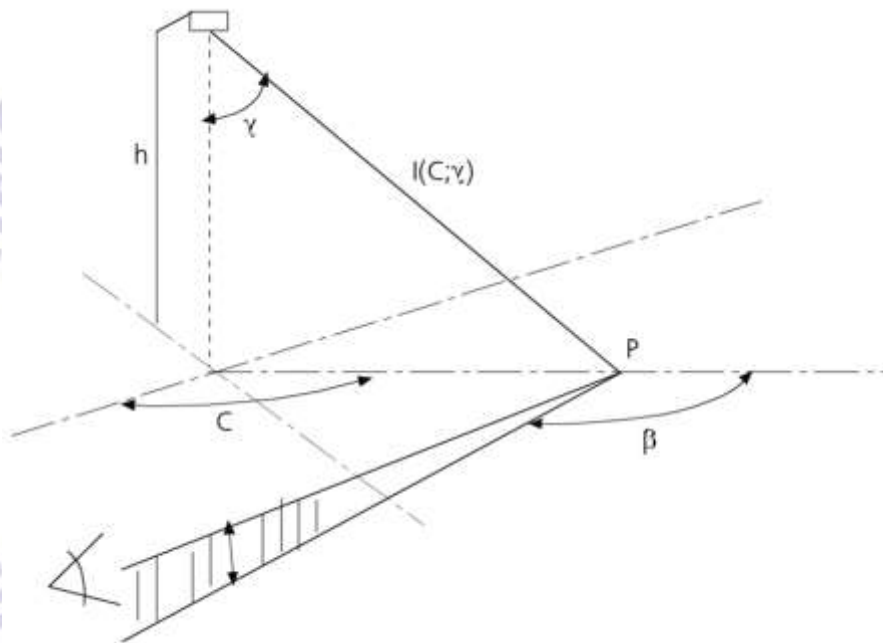


Figure 5. Geometric location of a P point on the road whose illuminance values is to be calculated

$$E_p = \sum_{i=1}^a \frac{I(C, \gamma)}{h^2} \cdot \cos^3 \gamma \quad (1)$$

4. LIGHTING DESIGN

The road surface in a tunnel used for touristic purposes is selected as R4. The R4 road surface is defined as mastic asphalt, shiny and highly smooth road surfaces according to the CIE International Lighting Commission. In this study, M6 was chosen as the lighting class. M6 lighting-class represents roads with speed <30 km / h and less crime rate on roads in residential areas, according to the CIE International Lighting Commission. Accordingly, the minimum criteria to be met on the road surface according to the lighting classes;

- $L_{average}$: Average luster of the road > 0.30
 - U_0 : Average smoothness ($U_0 = L_{min} / L_{average}$) > 0.35
 - U_1 : Longitudinal smoothness ($U_1 = L_{min} / L_{max}$) > 0.4
 - TI: Relative threshold increase <15
- should have values.

In this study, while the road surface illumination class in a tunnel used for touristic purposes is M6, a comparison was made in terms of illumination level in the simulation environment for direct illumination and semi-direct illumination. The variables processed in the simulation are shown in Table 1.

Table 1. Lighting parameters used in the simulation

Lighting Design	
One lamp along the way - in the middle	
Lighting class	M6
Number of lanes	2
Lane width	3.5 m
Road Width	7 m
Road Surface Class	R4
Mirroring Q_0	0.08
Distance between lights	15 m
Height	6 m
Maintenance factor (IP65- Low pollution -1 year)	0.93
Luminaire power	100 W
Luminous flux	17000 lümen

5. RESULTS AND DISCUSSION

For crowded pedestrian roads with high socio-economic and cultural importance, the Average Illumination Level ($E_{average}$) should be at least 20 lux. In this study, the average illumination level of the touristic tunnel lighting was investigated. Accordingly, $E_{average}=67.05$ Lx, $E_{min}=34.99$ Lx and $E_{max}=113.26$ Lx indirect lighting in Table-2. According to the simulation results, it was seen that the criteria related to illumination indirect illumination were met in terms of $E_{average}$. When direct illumination is applied, the illuminance level values of the points selected in the horizontal and vertical directions are seen in Table-2.

Table 2. Illuminance level values of selected points horizontally and vertically for direct lighting

Emin=34,99 Lx Emax=113,26 Lx Eaverage=67,05 Lx Uoa=0,52 Ula=0,31										
	0,750	2,250	3,750	5,250	6,750	8,250	9,750	11,250	12,750	14,250
0,583	71,482	61,963	48,943	39,969	34,993	34,994	39,971	48,946	61,968	71,487
1,750	106,031	90,657	75,006	59,994	51,851	51,852	59,996	75,009	90,661	106,037
2,917	113,250	106,651	98,167	78,798	69,566	69,566	78,800	98,170	106,656	113,256
4,083	83,704	87,023	88,395	78,488	70,818	70,819	78,490	88,398	87,028	83,711
5,250	56,048	59,516	65,165	62,008	55,557	55,558	62,010	65,169	59,521	56,055
6,417	36,402	38,418	43,270	42,211	36,956	36,957	42,213	43,274	38,423	36,409

The lighting method was changed and all other conditions were left equal and semi-indirect lighting was installed. In semi-indirect lighting, $E_{average}=26.82$ Lx, $E_{min}=14.0$ Lx and $E_{max}=45.3$ Lx. According to the simulation results, it is seen that the relevant criteria are met in semi-indirect illumination in terms of Eaverage. For crowded pedestrian roads with high socio-economic and cultural importance, it has been observed that the average lightness level (Eaverage) is at least 20 lux condition. (Measured as $E_{average}=26.82$ Lx in semi-indirect lighting.) Table 3 shows the illuminance levels of the points selected for semi-indirect lighting at horizontal and vertical levels.

Table 3. Illuminance level values of selected points in horizontal and vertical for semi-indirect lighting

	Emin=14,0 Lx Emax=45,3 Lx Eaverage=26,82 Lx Uoa=0,208 Ula=0,124									
	0,750	2,250	3,750	5,250	6,750	8,250	9,750	11,250	12,750	14,250
0,583	28,593	24,785	19,58	15,99	14	14	15,99	19,578	24,787	28,595
1,750	42,412	36,263	30	24	20,74	20,74	24	30,004	36,264	42,415
2,917	45,3	42,66	39,27	31,52	27,83	27,83	31,52	39,268	42,662	45,302
4,083	33,482	34,809	35,36	31,4	28,33	28,33	31,4	35,359	34,811	33,484
5,250	22,419	23,806	26,07	24,8	22,22	22,22	24,8	26,068	23,808	22,422
6,417	14,561	15,367	17,31	16,88	14,78	14,78	16,89	17,31	15,369	14,564

As a result, it was seen that the average illuminance values for tunnel lighting indirect lighting and semi-indirect lighting provide 20 lx value. Semi-indirect lighting can be used for tunnel lighting in this study as it will provide an advantage for tourism purposes. Semi-indirect lighting positively increases visual comfort. There is no loss in terms of energy efficiency. However, semi-indirect lighting provides an advantage visually.

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Design And Road Luminance Relationship In Tunnel Lighting

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ABSTRACT

In this study, lighting indirect and semi-indirect lighting types in tunnel lighting used for tourism purposes has been investigated according to energy efficiency. For this purpose, tourism tunnel lighting has been studied in a simulation environment. Only lighting types were changed so that all physical environment conditions were equal. Direct and semi-indirect lighting types are used in the tunnel. For these two lighting types, energy-efficient lighting design has been chosen by evaluating the luminance measurements in the simulation environment. Accordingly, the relationship between the type of lighting in the tunnel and the luminance distribution was compared numerically with the measurements made. The relationship between lighting type selection and energy-efficient design was compared numerically and the most efficient design was determined.

Key words: Road lighting, Luminance, Tunnel Lighting, Energy Efficiency,

1. INTRODUCTION

The energy consumed for lighting greatly affects the energy consumption used in tunnel and road lighting. Electricity should be used efficiently due to its high production and usage costs [1,2]. Rapid and unconscious consumption of energy resources used today forces human beings to find new alternative energy sources. However, existing energy sources should be used most economically and efficiently. Today, scientific studies are trying to develop new methods to increase energy savings.

For this purpose, many types of research have been conducted on alternative energy sources, especially at the international level recently [3-5]. Most of these studies are about the optimal use of electrical energy and are related to energy saving in lighting systems. The number of studies such as smart lighting systems for energy saving, energy control systems in workplaces, energy-saving design studies in ventilation and road lighting systems, and the use of smart control systems to provide energy control in industrial facilities is increasing.

The basic elements that determine the decisions taken in lighting design are the architectural features and function of the space. The material types used, colors, textures, reflection coefficients, and also physical properties such as the height of the space are decisive in the designer's decisions. Thanks to tunnels and road lighting, people's comfort to see the road is important. A balanced general illumination can be provided with the placement of lighting fixtures with direct light distribution, with correct light angles and appropriate intervals. Indirect light can be used as general or decorative lighting [6-8].

Hidden band-type lighting, which is frequently seen in residences and hotels, is an example of indirect decorative lighting. Low energy efficiency in indirect lighting systems may be a

disadvantage of the system. Because the light source is hidden and the light is reflected from the ceiling or walls, it can result in the use of high lumen output light sources to provide high illumination levels. On the other hand, indirect light does not create annoying shadows or glare and provides a pleasant atmosphere. In this respect, semi-indirect lighting provides an advantage in touristic tunnel lighting [8-10].

Using only direct lighting is a practical solution, but there is a sharp contrast between light and shadows. The ceiling surface of the touristic tunnel road remains dark compared to the ground surface. For this purpose, direct lighting and semi-indirect lighting were compared in this study.

2. TUNNEL LIGHTING DESIGN

The aim of a lighting designer is to always create comfortable, healthy, and beautiful spaces for their users. In this study, direct and semi-indirect lighting systems were used in the design process.

The lighting system chosen improves the visual comfort of an environment. Wrong lighting makes it difficult to see. Starting from the first stage of the design, lighting should be chosen according to the environment. Lighting standards, energy-saving requirements, and user comfort should be taken into account in the decision-making phase.

2.1. Lighting Types in Terms of Energy Resources

4. Natural Lighting is defined as a lighting system designed to meet the visual comfort needs of daylight, the main source of which is the sun. Natural lighting can be seen in Figure 1.



Figure 1. Natural lighting

5. Artificial Lighting is defined as the lighting system designed to meet the visual comfort needs of the light produced from artificial light sources. Artificial lighting is seen in Figure 2.



Figure 2. Artificial lighting

6. Hybrid Lighting is defined as a lighting system in which light is used as a supplementary light in cases where daylight is insufficient to meet visual comfort requirements. Figure 3 shows mixed (artificial and natural) lighting.



Figure 3. Hibrid (artificial and natural) lighting

Artificial Lighting is used for simulation in this study.

2.2. Lighting Design Types

The ratio of light to be used for lighting the area to be illuminated determines the type of lighting. Lighting types according to light distribution;

1. If 90% or more of the light emanating from a light source illuminates the targeted area, this is Direct Lighting. Direct (direct, direct) lighting transports 90-100 percent of the light coming from the lighting fixtures directly to the working plane. It is important to prevent glare that may occur in this type of lighting. Indirect lighting, the ceiling may appear dark depending on the area to be illuminated.
 2. Diffuse lighting, 40-60 percent of the light spreads downward and 60-40 percent upward, fixtures such as glass or plastic globes are examples of this type.
 3. Indirect (indirect) lighting scatters 90-100 percent of the light upwards. If you can use 20% or less of the light from a light source to illuminate the area you want, it is called Indirect Lighting. The light directed to the ceiling or walls illuminates the working plane indirectly, the risk of glare is low, energy efficiency is lower than direct lighting.
 4. If the light from a light source illuminates the desired area between 90-60%, it is called Semi Direct Lighting. Semi-direct (semi-direct) illumination, 60-90 percent of the light is spread downward and 40-10 percent upward.
 5. Direct/indirect lighting, the light is emitted directly and indirectly from the ceiling. If you can use 60-40% of the light coming from a light source, Mixed Lighting is applied.
 6. If you can reflect 40-20% of the light coming from a light source to the desired area, Semi Indirect Lighting has been made. In semi-indirect (semi-indirect) lighting, 10-40 percent of the light is spread downward and 90-60 percent upward [5-10].
- Figure 4 shows the lighting types according to the light distribution.

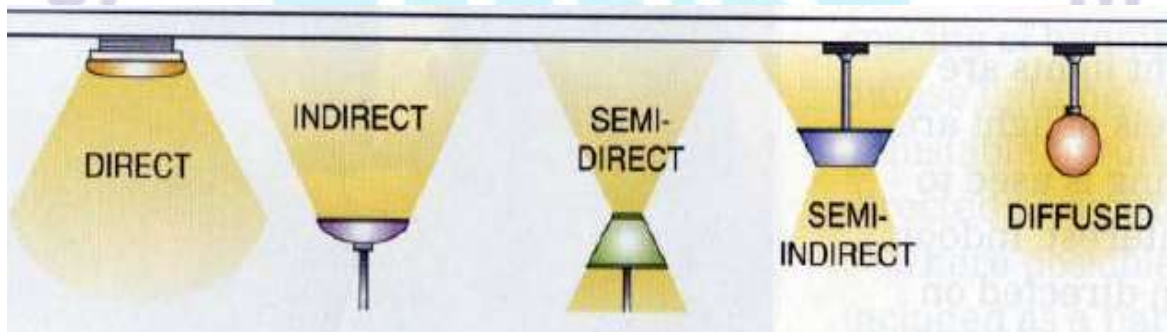


Figure 4. View of lighting types according to light distribution

In this study, direct lighting and semi-indirect lighting were used for simulation. These two methods have been compared in terms of energy efficiency.

3. LUMINANCE CALCULATION FOR A POINT ON THE SURFACE

The luminance of a P point on any surface is the sum of the luminances created by all light sources at this point [1-5]. Figure 5 shows the geometric location of a P point on the way the luminance value will be calculated. The glow of a P point is shown in equation 1.

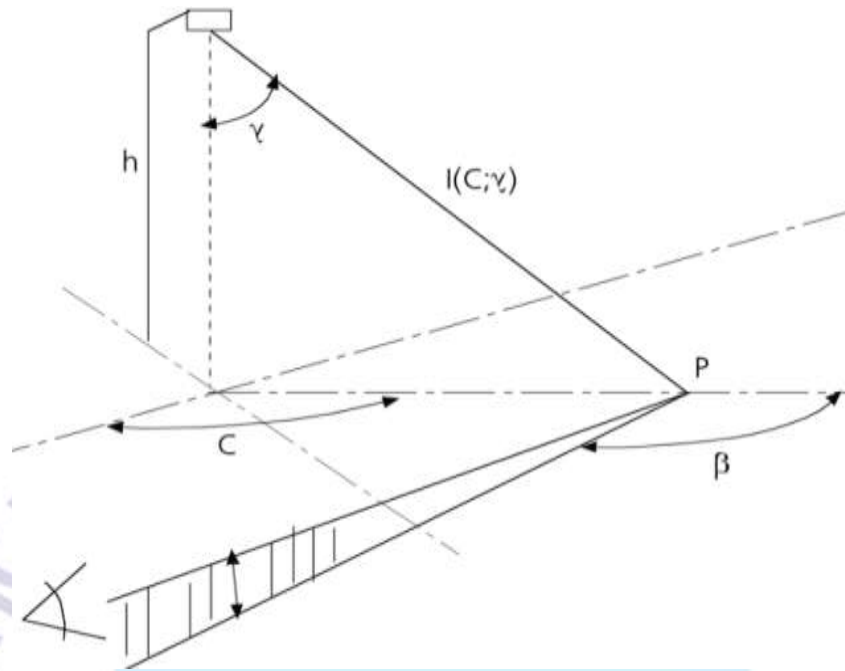


Figure 5. Geometric location of a P point on the way to calculate the glow value.

$$L_p = \sum_{i=1}^a \frac{I(C_i, \gamma_i)}{h^2} \cdot q(\beta_i, \gamma_i) \cdot \cos^3 \gamma_i \quad (1)$$

4. LIGHTING DESIGN

The road surface in a tunnel used for touristic purposes is selected as R4. The R4 road surface is defined as mastic asphalt, shiny and highly smooth road surfaces according to the CIE International Lighting Commission. In this study, M6 was chosen as the lighting class. M6 lighting-class represents roads with speed <30 km / h and less crime rate on roads in residential areas, according to the CIE International Lighting Commission. Accordingly, the minimum criteria to be met on the road surface according to the lighting classes;

- $L_{average}$: Average luster of the road > 0.30
- U_0 : Average smoothness ($U_0 = L_{min} / L_{average}$) > 0.35
- U_1 : Longitudinal smoothness ($U_1 = L_{min} / L_{max}$) > 0.4
- TI: Relative threshold increase <15

should have values.

In this study, while the road surface illumination class in a tunnel used for touristic purposes is M6, a comparison was made in terms of illumination level in the simulation environment for direct illumination and semi-direct illumination. The variables processed in the simulation are shown in Table 1.

Table 1. Lighting parameters used in the simulation

Lighting Design	
One lamp along the way - in the middle	
Lighting class	M6
Number of lanes	2
Lane width	3.5 m



Road Width	7 m
Road Surface Class	R4
Mirroring Q_0	0.08
Distance between lights	15 m
Height	6 m
Maintenance factor (IP65- Low pollution -1 year)	0.93
Luminaire power	100 W
Luminous flux	17000 lümen

5. RESULTS AND DISCUSSION

The values to be provided for M6 lighting class in the tunnel are $L_{average} > 0.30$, $U_0 > 0.35$, $U_1 > 0.4$, $TI < 15$. An average luminance value of $L_{average} (cd/m^2) > 0.30$ should be provided due to the illuminance level value required in an area with an M6 lighting-class where the speed is less than 30 km/h. According to the 1st or 2nd observer, the average glow value is $L_{average1} = 3,82 \text{ cd/m}^2$ and $L_{average2} = 4,14 \text{ cd/m}^2$ and the lowest glow value is $1,697 \text{ cd/m}^2$ (Table-2 and Table-3). Even this value is greater than 0.30 cd/m^2 . For this reason, standards are provided indirect lighting.

Table 2. Luminance values for observer-1 in direct lighting

Observer-1 $L_{average} = 3,82 \text{ cd/m}^2$ $U_0 = 0,44$ $U_1 = 0,74$ $TI = 10,7\%$										
	0,750	2,250	3,750	5,250	6,750	8,250	9,750	11,250	12,750	14,250
0,583	4,700	4,612	4,302	3,981	3,871	3,879	3,996	4,145	4,368	4,547
1,750	5,646	5,607	5,195	4,704	4,383	4,166	4,398	4,851	5,065	5,375
2,917	5,200	5,482	5,435	4,967	4,606	4,328	4,557	5,037	4,932	5,012
4,083	3,925	4,293	4,492	4,254	3,954	3,723	3,776	3,962	3,802	3,734
5,250	2,771	3,034	3,333	3,235	2,831	2,593	2,740	2,814	2,582	2,598
6,417	1,866	2,037	2,252	2,156	1,814	1,697	1,899	1,905	1,762	1,782

Table 3. Luminance values for observer-2 in direct lighting

Observer-2 $L_{average} = 4,14 \text{ cd/m}^2$ $U_0 = 0,42$ $U_1 = 0,77$ $TI = 6,3\%$										
	0,750	2,250	3,750	5,250	6,750	8,250	9,750	11,250	12,750	14,250
0,583	4,588	4,527	4,199	3,886	3,764	3,757	3,890	4,059	4,310	4,491
1,750	6,559	6,564	6,082	5,436	5,044	4,868	5,020	5,483	5,727	6,047
2,917	5,938	6,253	6,305	5,693	5,186	4,849	5,068	5,667	5,532	5,613
4,083	4,304	4,822	4,984	4,703	4,389	4,019	4,109	4,232	4,118	4,057
5,250	2,945	3,268	3,546	3,464	3,045	2,781	2,870	2,958	2,744	2,761
6,417	2,003	2,182	2,380	2,277	1,913	1,757	1,967	1,960	1,837	1,873

The values to be provided for M6 lighting class in the tunnel are $L_{average} > 0.30$, $U_0 > 0.35$, $U_1 > 0.4$, $TI < 15$. An average luminance value of $L_{average} (cd/m^2) > 0.30$ should be provided due to the illuminance level value that should be provided in an area with an M6 lighting-class where the speed is less than 30 km per hour. In semi-indirect lighting, the average glow value according to the 1st or 2nd observer

is $L_{average1}=1,528 \text{ cd/m}^2$ and $L_{average2}= 1656 \text{ cd/m}^2$, and the lowest glow value is $0,679 \text{ cd/m}^2$ (Table-4 and Table-5). This value is greater than 0.30 cd/m^2 . For this reason, $L_{average}$ standard is provided in semi-indirect lighting. However, other parameters were below the limit values. While U_0 should have been >0.35 , it decreased to $U_0=0.176$ for Observer-1 and to $U_0=0.168$ for Observer-2, falling below the relevant standard. While U_1 should have been >0.4 , it decreased to $U_1=0.296$ for Observer-1 and $U_1=0.308$ for Observer-2. Since $U_0 > 0.35$ and $U_1 > 0.4$ for Observer-1 and Observer-2, the relevant standards are not met in semi-indirect lighting. It has not been possible to use this Semi-indirect lighting in terms of luminosity.

Table 4. Luminance values for observer-1 in semi-indirect lighting

Observer-1 Laverage=1,528 cd/m² $U_0= 0,176$ $U_1=0,296$										
	0,750	2,250	3,750	5,250	6,750	8,250	9,750	11,250	12,750	14,250
0,583	1,88	1,845	1,721	1,592	1,548	1,552	1,598	1,658	1,7472	1,8188
1,750	2,258	2,243	2,078	1,882	1,753	1,666	1,759	1,9404	2,026	2,15
2,917	2,08	2,193	2,174	1,987	1,842	1,731	1,823	2,0148	1,9728	2,0048
4,083	1,57	1,717	1,797	1,702	1,582	1,489	1,51	1,5848	1,5208	1,4936
5,250	1,108	1,214	1,333	1,294	1,132	1,037	1,096	1,1256	1,0328	1,0392
6,417	0,746	0,815	0,901	0,862	0,726	0,679	0,76	0,762	0,7048	0,7128

Table 5. Luminance values for observer-2 in semi-indirect lighting

Observer-2 Laverage= 1,656 cd/m² $U_0=0,168$ $U_1=0,308$										
	0,750	2,250	3,750	5,250	6,750	8,250	9,750	11,250	12,750	14,250
0,583	1,835	1,811	1,68	1,554	1,506	1,503	1,556	1,6236	1,724	1,7964
1,750	2,624	2,626	2,433	2,174	2,018	1,947	2,008	2,1932	2,2908	2,4188
2,917	2,375	2,501	2,522	2,277	2,074	1,94	2,027	2,2668	2,2128	2,2452
4,083	1,722	1,929	1,994	1,881	1,756	1,608	1,644	1,6928	1,6472	1,6228
5,250	1,178	1,307	1,418	1,386	1,218	1,112	1,148	1,1832	1,0976	1,1044
6,417	0,801	0,873	0,952	0,911	0,765	0,703	0,787	0,784	0,7348	0,7492

As a result, although $L_{average}$ values were provided in semi-indirect lighting, U_0 and U_1 values fell below the limit values. For this reason, it is not possible to use semi-indirect lighting in terms of luminance for this study in tunnel lighting.

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Bovine Abdominal Ultrasonography

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Abstract:

Background: Ultrasonography is a useful diagnostic tool for veterinary medical applications. Despite, its great potential such facilities are available only in a few teaching veterinary institutions and its field applications are totally lacking. Though of late some work on bovine ultrasonography has started and its use has been reported for reproductive applications. However, detailed systematic ultrasonographic studies are still lacking.

Aim and objectives: To standardize the normal sonographic anatomy of bovine abdominal organs.

Materials and methods: The normal bovine abdomen was subjected to ultrasonographic examination for standardizing the technique and machine settings utilizing 10 adult, non-pregnant, clinically healthy Jersey cows.

Results: The reticular wall was seen in 7th-6th ICS and parasternal region as a thick echogenic line adjacent and caudal to diaphragm. The wall was smooth with a curvature towards its caudal end on the dorsal side. The wall of the rumen was identified as a thick echogenic line adjacent to the abdominal wall from 8th ICS to throughout left flank caudally. The omasum was observed from 11th to 6th ICS and its wall as an echogenic arc. The abomasum was imaged from the ventral midline and from both the paramedian regions. The duodenum was identified as a double walled structure adjacent to right abdominal wall. The jejunal loops could be seen easily and differentiated from the duodenum because of the lack of target-like appearance in former. Only the wall of the large intestine adjacent to the abdominal wall could be scanned due to the presence of the gas in the lumen causing acoustic shadowing masking the details of underlying structure. In general the small intestines were scanned in ventral half of the flank whereas, large intestines in dorsal half.

Conclusion: Ultrasonographic dimensions of the abdominal organs obtained will serve as reference for a clinician to differentiate between normal and abnormal pathological conditions of bovine abdomen.



Ultrasonographic Diagnosis of Acute Abdomen in Equines

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Abstract:

Background: Ultrasonography offers better contrast resolution than radiography and is capable of viewing the internal organs in different planes in real time. The diagnostic abdominal ultrasonography is increasingly used in veterinary practice and has an important role in decision making in equines with abdominal disorders.

Aim and objective: This study was aimed to diagnose different pathological conditions of equine abdomen.

Materials and methods: In the present study 9 cases were presented with typical signs of colic (Kicking at belly, stamping at ground, frequent rolling, sweating, muscle tremors & anorexia) in which ultrasonography was performed.

Results: In 4 animals the left & right ventral colonic walls were found flattened against the ventral body wall with loss of normal sacculations and peristaltic movement suggestive of LVC & RVC impactions. The impactions were imaged as hyperechoic intraluminal structures casting a strong acoustic shadow masking the details of inner organs. In another four animals severe abdominal distension, strong churning movements of the ingesta in ventral colons & large hyperechoic mass casting a strong acoustic shadow was imaged in the lumen of the descending colon suggestive of obstruction of the descending colon (fecolith) with loss of normal sacculations and peristaltic movement. The peritoneum in another case was imaged as thin echogenic layer with lot of peritoneal fluid present inside the abdominal cavity with marked thickening of jejunal wall suggestive of peritonitis. While in another case a multilayered mass of elliptical or circular rings with typical onion peeling pattern of varying echogenicities was seen; highly suggestive of jejunal intussusception.

Conclusion: It was concluded that thorough clinical investigation combined with ultrasonography was found to be an important diagnostic imaging aid for diagnosing different abdominal disorders in equines and equips the surgeon/clinician to identify the exact etiology, which helps reach at an accurate diagnosis and formulate a precise and efficient therapeutic plan.



Narrative of the Tribal Women and Community in Tripura: A Gender Perspective

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Abstract

The northeast state of Tripura has colourful glimpses through her indigenous population. The tribal community of Tripura and the tribe's women are the original inhabitants, who are living freely, without any disturbance between men and women. It is their tradition to stay equally in a truthful manner. An estimated 80% tribal population speaks in the Kak-Borak language. Like other tribes of India and Africa, the tribe's communities of Tripura such as Riang, Kukis, Lushais are still living in their traditional residence, located in the hill part of Tripura. They are harvesting their traditional product from there. They are an easy-going group for each other with unity and solidarity. The solidarity among their groups makes them stronger and believers in each other. As one of their supporting rituals from the parent's side, the father gives his daughter land as a gift and because of the heritage, the daughter can not protest it. The community of Bengali migrants from East Bengal to Tripura changed everything. Because of their superiority, Bengalis are expanding their network all over Tripura. While the tribe's communities are reducing and turned into a minority. The terrorism problem in Tripura is a reason for inequality between ruler Bengalis and common tribes. The objective of the paper is to explore the indigenous community. The outcome of the paper is to know the situation from the past to the present and understanding the socio-economic status of the tribe's women and the community. The methodology has been taking through documentary analysis. The feature question is, how do tribes' women return their status they deserved in the past?

Key Words: Indigenous, Ecomuseum, Socio-Economic and Eco-system, Tradition and Status, Bengali Migrant, Marketization & Modernization, Jhum cultivation.

Introduction: Tripura is India's northeast state surrounded by five mountain ranges, Boromura, Atharamura, Longtarai, Shakhan and Jampui hills. The location of Tripura is one of the corners of India and is connected by only one national highway with the rest of India. Transportation is not developed, resulting in an underdeveloped and agriculture-based state. Service is the main sector for employment, most of the people of Tripura works in the service



sector, some of them work in the agriculture field. An estimated three million people live in Tripura. 1/3 population of Tripura our tribal community. ¹The original tribes of Tripura are Tripuri, Reang, Jamatia, Chakma, Kukis, Garos, Halam, Mog, Noatia, Lusai, Uchai, Chaimal etc. Bill, Munda, Orang, Khasia, Bhutias are immigrant tribes' people who settled in Tripura for economic reasons. Most tribe's communities have alternatives for food such as their crop agriculture, horticulture, and fish farming etc. ²The tribal women have more freedom than the non-tribe women. They can choose their husband and has the freedom of sex. ³In the 1956 Hindu Succession Act. Passed for the development of gender disparity, especially for women and children in Indian society. From then the empowerment of the tribal women was started. Equality recognition, equality of the gender. At present tribes' girls have similar ownership of their parental property like her brother. The tribal community never followed terrified prejudices such as the practice of Sati. They enjoyed their life; they were liberal, and they could re-marriage as well. However, tribal women in Tripura were deprived of many things and became the minority class in their original place. The high caste of Hindu groups completely influenced over trial women, through which the identity of tribes has been relinquished and they follow Bengalis and other non-original Hindu communities. There are various public projects, university degrees for the knowledge and betterment of tribe's women in Tripura, but those are not properly implementing. The changing scenario of the tribe's community and tribe's women is not good. Tribal women are missing, killing at present. They are working in the service sector, such as a cook or hotel receptionist. They are going to rape and murder various people including the hotel owner etc. ⁴The health care of the tribe's women has been prioritized by the homeopathy medicine centre. Homeopathy has been prioritized and developed for the wellbeing of adolescent women, especially for the tribe's women by thinking about their traditional rituals. Homeopathy has a connection with the eco-system, and it is traditional as well. Traditionally tribes' women are physically fit due to the hilly environment, but the fitness is for economic contribution. Nobody takes care of minorities everywhere in the world. Therefore, everyone should respect women and work according to their wishes.

Literature Review: Tripura is one of the smallest states of northeast India. Tribal communities of Tripura are inhabitants. They are living from the urban Agartala to the top-

¹ Review of Status of Tribal women in Tripura. Paragraph 2.

² Review of Status of Tribal women in Tripura. Paragraph 5.

³ Review of Status of Tribal women in Tripura. Paragraph 6.

⁴ Situation analysis of tribal women's health in Tripura with a focus on adolescent girls: A homeopathic perspective. Discussion. Paragraph 9



most hilly regions of Tripura. They are a traditionally rich, culturally novel savage and noticeably quiet community. They are truthful and hard workers. Traditional cultivation like jhum is their main production for livelihood. They have less idea about the marketing economy, and this is how they live with nature sustainably. The community of Tribe's, their geographical locations, their rituals, traditions, livelihood, and the status of their women are always rich. Their practices within their boundary are an example of Ecomuseum. A museum without a wall. However, their traditional ways of life have been disturbed due to modernization, the effect of globalization. Tripura like other states of India wants to be self-reliant in the economy. Therefore, Tripura needs production in modern cultivation. The development mentality damages the traditional culture of the tribe's people. The migrant Bengalis influenced the tribe's community in the urban sectors. As a result, the tribal community is forgetting their tradition and following the tradition of the superior Bengali community. They are forgetting to respect their women. They are accepting the bribe in many cases such as during weddings. These all affect that has come from migrant Bengali. They should be treated equally with the Bengali community, should establish their social justice, rights, and preservation as Tripura's heritage.

Methodology: The methodology to write the paper has been taken by the description of sources, by reading, gathering in-depth insights on topics, focuses on exploring ideas, summarizing, and interpreting and mainly expressed in words (documentary analysis through qualitative approach). Academic articles are the main sources to write this paper. The content of the paper is about the Tribal community and tribe's women in Tripura. The traditional status of the tribe's women has been discussed. The social changes and their influence on the tribe's women have been analyzed and a model of the Canadian aboriginal community has been discussed as a naturalistic viewpoint and as a recommendation to adopt by the Government of Tripura and by other non-profit organizations who involves in the betterment of the Tribal community in Tripura. The counterpart of Tripura's original community, Bengali and their enlargement as a major community, their facts to influence over the Tribal community have been discussed as well. Therefore, it is a research article.

Result and Discussion: Tripura is one of the smallest northeast states of India. An estimated 31.1% of the entire population are tribal groups currently as the minority section, while the Bengali community is the majority section in Tripura. ⁵Tribal puja and centenaries are

⁵ Tribal Research and Cultural Institute, Tribal Welfare Department, Government of Tripura, Tribal puja and festivals, paragraph 3



traditional and gorgeous in their naturalistic way and constitute a diverse and rich cultural heritage. The heritage is indigenous under an Indian traditional culture. the festivals are Kharchi puja, Garia puja, Ker puja, Bizu festival, Tirthamukh festival, Ganga puja, Lampra puja, Wah festival etc. ⁶There are 19 different tribes' communities in Tripura regards as the original settlers and belong to the tribe king of Tripura. ⁷Tripuri, Riang, Jamatia, Halam, Kuki, Chaimal, Uchai Noatia, Bhil, Bhutia, Garo, Khashia, Lepcha, Lushai, Munda, Santal, etc. are the groups of tribes in Tripura, who are presenting their heritage from this state of northeast India. Among those groups, Tripuri is the largest group represents an estimated 54.7% of the total tribal population, while Riang represents an estimated 16.6%, Jamatia represents an estimated 7.5% and the rest of the percentages have been divided into other tribes of Tripura. Though they have various religious rituals, Hinduism is their main religion. ⁸An estimated 80% tribal population is Hindu. ⁹An estimated 80% tribal population speaks in the Kak-Borak language. Like other tribes of India and Africa, tribe communities of Tripura such as Riang, Kukis, Lushais are still living in their traditional residence, located in the hill part of Tripura. They are harvesting their traditional product from there, ¹⁰which is jhum cultivation. They have various rituals in the context of property rights, wedding rituals, dress code, food and drinking habits etc. this is their uniformity that belongs to their culture. Women in the tribe's group of Tripura have a considerable position in the context of social and economic areas. Women are the economic mainstay in every tribe communities in Tripura. In north-east India because of the geographic characteristics and their heredity, tribal women physically and socially built-in to lead a livelihood in a tremendous adversity condition. Men and ¹¹women meet freely because of free social and sexual relations among their communities. They are an easy-going group for each other with unity and solidarity. The solidarity among their groups makes them stronger and believer in each other. As one of their supporting rituals from the parent's side, the father gives his daughter land as a gift and because of the heritage, the daughter can not protest it. ¹²However, women from Jamatiyas and Halams can not claim the parental property as the rituals of these communities but in practice, the rules are not that strict to follow. Therefore, daughters receive family property from their parental side. In jhum cultivation tribes' women participates in the production. In

⁶ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 1

⁷ Eastern Routes. Entire Paragraph.

⁸ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 2

⁹ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 2

¹⁰ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 2

¹¹ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 3

¹² Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 4



the Jamatia tribes group, women may not be equal to their male counterparts, but they are not much dependent on their husbands as well. They have a division of labour based on age and sex as well. As a result, women in the Jamatia tribes' group are not that vulnerable or depressed. Women have high social status in the tribe's communities of Tripura.¹³ Under a practice called marriage by service, a young man will serve at the girl's house from six months to three years to show his ability or credibility to manage a family and thus respect his wife. It is a morality of service.¹⁴ It is a right to withhold tribal women in their community when they decide to marry someone.¹⁵ According to scholar Hunter, there is no child marriage in the tribe communities, and they do not support it, neither in the last 100 years of their history, any issues of child marriage raised. They allow the tribe's widow to re-marry.¹⁶ As a result, out of estimated 2,09,100 married tribal women, an estimated 2,986 women are married below 18 years of their age. This is an example of the tribal community in north-east India and in Tripura through which the status of tribe wives has been socially high in their households. The law and order from the king of Tripura Maharaja Bir Chandra Manikya were strict against the violence of tribal women.¹⁷ The first criminal law (1886) was ratified during the kingship of Bir Chandra Manikya by implementing the death penalty against women's deprivation, resulting exceptionally low rate of the case against tribal women violence in Tripura even today. It has been said that the tribal families have mutual understanding through trust, value, ethics and fear of each other. The women from Jamatia, Rieng and Tripuri communities participate in community and village administration and religious activities. Though they are not allowed to become the priest of the community, neither they are expected to be active in the affairs of the council. Such a gender bias is lower in the tribe's community of Kuki, Lushai and Noatia. Women from Kuki, Lushai and Noatia tribe groups can be appointed as community lady officers who can even manage infidelity issues. The traditional culture of tribal community has provided equal rights, and higher social economic status to tribe women, which is not matching with current demographic changes in northeast India, as well as in Tripura.¹⁸ In the 19th and 20th century there are several changes in Tripura due to¹⁹ the arrival of Bengali migrants from East Bengal. Bengali communities have proved more

¹³ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 5

¹⁴ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 5

¹⁵ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 6

¹⁶ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 6

¹⁷ Gender, Space and Development: Tribal Women in Tripura. Place of women in Tripura. Paragraph 7

¹⁸ Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph

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¹⁹ Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph

2



conscious and more productive than the original tribal inhabitants of Tripura. The traditional cultivation(jhum) was not able to achieve the growth of production for the betterment of the state in agriculture, neither the tribe's community were much educated for the running of the administration. Therefore, state revenue was not good, and the natives were not competitive with the rest of the Indian community and states for a better build Tripura. The tribal community was satisfied along with their tradition, old model of agriculture and the canopy of darkness in the hilly areas. Their attitude was not fit for the modernization or the reformation of Tripura in the context of socio-economic advancement. It was a clear message that Tripura will remain behind and the poor state of India if traditionalism continues led by the native communities of Tripura. This gap has been fulfilled by the Bengali Hindu migrant community from East Bengal (currently Bangladesh) to Tripura. Socio-economic-political-administrative changes start in Tripura through this enormous Bengali immigration. Demographic imbalances have been observed within the population fluctuation. ²⁰In 1872 tribal population was estimated at 63.78% while in 1951 it was estimated at 34.35% and in 2001 it was estimated at 31.1 %. This is how the population of the tribe's community in Tripura was decreasing, while the population of the Bengali community was increasing. the population density was also increasing due to this population imbalance between the two main communities of Tripura (Bengali and Tribal). ²¹In 1991 population per square kilometre was 263 and in 2001 it was estimated at 305 per square kilometre. This demographic change brought various social, cultural, political, and economic problems in Tripura, such as the dominance of the Bengali migrant community over the original tribe's community. Assimilation and acculturation were increasing and influencing by the Bengali and other outsiders' communities in Tripura's culture and society, while the tribal community was becoming a minor community due to their population decreasing and deprivation through the socio-economic-cultural downturn. ²²A class-based agrarian society was born in the state's society through various formal laws and regulations. The law was the restriction for tribes jhum based cultivation. A production-based mercantile economy was the main dream of Tripura's economical growth, therefore the law has been implemented to create such a fast and dynamic productive economy through class-based agriculture(feudal), rather than slower,

²⁰ Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph 2

²¹ Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph 3

²² Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph 3



tradition-based native agriculture only for livelihood.²³ By the end of 1943 estimated ¼ territory was branded as reserved forests through which jumping cultivation was prohibited. Tribes have been forced into a new form of cultivation under a reformation, which they would not like. Their lifestyle was not for change due to their natural order. In a new agricultural phenomenon, the participation of the tribe's women was lower than the men and cultivate the same land for years.²⁴ The class-based agriculture made the tribal community a borrower from the economically superior Bengali moneylender. It was a process to control them by the Bengali community for the domination through various characteristics such as the image of the landlord, businessman, moneylender, administrator etc. the social-economic-cultural formation of Tripura has brought a dramatic change in the tribe communities. The change came through gender discrimination within tribal groups.²⁵ The term: gender discrimination was through women's deprivation in the tribe's community, which was a discovery. We would know that tribe women had higher social dignity in their society in the past. But it was changed due to the demographic changes of Tripura. Tribes Women ratio compare to men in the participation of work was lower.²⁶ In 1961 the ratio of women in the work participation was estimated at 48.26% while men were estimated at 54.76%, in 2001 the women participation was estimated at 37.50 while men were 47.60. A huge decrease we can observe here between 1961-2001. Gender bias has been seen in the workplace through the average participation of the tribal worker.²⁷ An estimated 42.7% scheduled tribe (ST community) was declared as a worker in Tripura, while it was estimated 49.1% STS at the national level. It was lower than the average in the national level tribes' workers.²⁸ The majority of the male tribes were categorized as main workers (estimated 86.5%) while the female was estimated 47.5% categorized as main workers.²⁹ On the other side tribes' women were categorized as majority marginal workers than the men, an estimated 52.5% of tribes' women were marginal, while an estimated 13.5% were men.³⁰ The process of relegation (marginalization) had affected the work performance of tribe's women in the rural areas.³¹ An estimated 47% of the rural women were categorized as main workers while in the urban areas it was estimated 94% of

²³ Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph 3

²⁴ Gender, Space and Development: Tribal Women in Tripura. Demographic and Economic changes. Paragraph 3

²⁵ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 1

²⁶ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 1

²⁷ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 1

²⁸ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 1

²⁹ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 3

³⁰ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 3

³¹ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 3



tribes' women as main workers. The total population of the tribe's women were from the villages; while an estimated 2.15 % of rural tribes' women were non-worker, wherein the urban area was 1% only. Therefore, the disparity was clear in the rural areas, resulting in negative ways over the modernization and development process on rural tribal women. As a part of the reformation, various service industries were built in the urban sector and urban tribeswomen took advantage, while there was no improvement of rural tribal women because of their illiteracy, lack of facilities etc. As a result, a distinction was raised between urban and rural tribes' communities. As a part of the reformation for developed Tripura, urbanization was another narrative.³² A small urban centre was built within elite classes such as royal notables, officials of the princely administration, connected with the king etc.³³ The urban population was increased from an estimated 6.7% to an estimated 17.06 % (1951-2001) but the enlargement of the tribal population in the urban center was lower than the overall enlargement.³⁴ Estimated 7.2% literacy growth had been seen among urban tribes' women between 1991-2001, while the literacy growth among men was estimated at 4.6%. Therefore, gender disparity was clear between men and women in the tribal community and between the tribe's women of rural and urban Tripura.³⁵ Agartala is the capital city of Tripura and the epicentre of the urbanization of Tripura was always equipped with education, transportation and various structural facilities from the rule of the Tripura Dynasty. Therefore, women in Agartala were always advanced socially, culturally etc.³⁶ The literacy rates of Tripuri women in the city of Agartala were estimated at 94%, while in 2001 urban tribe's literacy rate was estimated at 92%. It was much higher than the overall literacy rate of Tripura estimated at 73%. Urban literacy shows a bright hope for the formational development of the urban centre of Tripura surrounded by Agartala city. The overall picture of Tripura in the context of literacy was not committed to growth.³⁷ In Tripura men in the tribe's community were estimated 68% literate, while women were estimated at 44.6% in 2001.³⁸ Better literacy rates were found among Kuki women and girls in rural Tripura. Literacy glimpses were found in other tribe communities of northeast India. Christianity was one of the reasons for the literacy revolution in those remote areas among tribe's communities. They accepted Christianity for a

³² Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 7

³³ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 7

³⁴ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 8

³⁵ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 8

³⁶ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 8

³⁷ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 9

³⁸ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 9



better life, and they got it. ³⁹Religious customs, the belief of the tribal community in Tripura had changed. They started worship of female goddess Laxmi, Kali, Durga like their Bengali counterpart. They were avoiding or hardly calling village male priests ⁴⁰(Orchis) for drive away witched or evil spirit. The demographic changes of the urban tribes' practices in various phenomena including its religious practices were good for a formidable development, especially about women's development. They were practicing Bengali customs and rituals for better institutional development among their community. The process of urbanization thus leads to the setup of Bengali patriarchy in Tripura and among the tribe's community. ⁴¹Wedding customs among urban tribes had changed as well. The social evil of dowry was growing among the urban tribe's community and thus the traditional higher social status of the tribe's women was ignored. They also started to prefer male children to female. This is how ⁴²Bengali social institutions and practices influenced the tribal community of Tripura. The tribal community of Tripura did not like the Bengali hegemony, resulting in long-run terrorism in the state. Terrorism kills millions of people year by year in Tripura, damages public and private properties. It is economic and societal exploitation by the urban Bengali elites to the rural innocent indigenous tribe community of Tripura. The government of Tripura, therefore, has taken steps for the preservation of the tribe's community through a new dimension of work and milestone in favour of the age-old- tribe culture of the state. ⁴³Tripura State Academy of Tribal Culture had set up in the year 2009-10 for academic enhancement such as; ⁴⁴“conducting short term diploma on tribal folk song, dance and Kham, promotion of tribal culture in the context of instrumental music, crafts, design through applied research work, exchange program within neighbouring states in the field of vocal music, folk song, explore and promote tribe wise culture, to award a person for their contribution in the field of tribal culture, to create a sense of harmony about tribal culture to others and students, and a three years diploma course in Tribal culture offered by Tripura University etc.”

Conclusion: Tripura and her indigenous community have a long history since the rule of the kingdom of Tripura. Tribeswomen have had an excessively big role within their society since then. They are a traditional and naturalistic-based community and have very less influence on

³⁹ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 10

⁴⁰ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 11

⁴¹ Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 12

⁴² Gender, Space and Development: Tribal Women in Tripura. Gender Disparity among Tribal. Paragraph 12

⁴³ Tribal Research and Cultural Institute, Tribal Welfare Department, Government of Tripura, Academy of Tribal Culture, paragraph 1

⁴⁴ Tribal Research and Cultural Institute, Tribal Welfare Department, Government of Tripura, Academy of Tribal Culture, the major activities of academies paragraph 1



cosmopolitanism. The status of the tribe's women depends on their playing role in society. ⁴⁵Social justice is a significant factor of every society that reflects the status of their women, the status also depends on various socio-economic and demographic narratives such as education, employment, caste, religion, health, and beauty. Herewith the term gender has a significant meaning for the classification of human as male and female along with their behaviour that has been assigned in the context of their social role; such as women roles and men roles in the society influenced by the socio-cultural phenomena, practices, customs, belief, values, and norms etc. In this context, men are superior to women in northeast India, as a patriarchal (male-controlled) society. Womenfolk in the tribe's community constitutes their position as an economic backbone, socially free. They are hilly women, and because of these geographical conditions, they are physically fit and thus work hard as well. This is their inborn quality. ⁴⁶Women and children in the tribal community's work in the forests to collect minor forest produce, in the meantime, they also work as a labourer in various organizations, construction as a family contributor economically. They are as a worker are more alert and truthful than non-tribal. However, the status of tribal women has changed than before it was. The changes in the societal status of women are due to the migrant Bengali community in Tripura. Tribes are following superior Bengalis. In this context, there have been changes in not to prioritize or respect feminism. Tribal women are facing problems and challenges in getting a life that is better, safe, and sustainable. The question is how do tribes' women return their status they deserved in the past? ⁴⁷The characteristics of empowerment through more participation, open-access of conversation, rights to speak and liberation can be a milestone for reorganizing the status of tribe women in Tripura. Empowerment through empathy can be the solution to the problems. The characteristics of sympathy have their downside, but empathy can be a great source for recovering the status and bring them again to the mainstream of the tribe's society and family. This empowerment can be done through better education, better health care, better literacy rate, consciousness about prejudice, equality ownership. Self-reliant, standard, and self-confidence are another way of characterizes that can be empowered among the tribe's women. The rights of women governed by the municipality, city, national and international law is a great concern for the development of women, and especially indigenous women to come out from depression. Preservation of

⁴⁵ **Gender Development and the Status of Tribal Women: A Study of Tripura. Status of Tribal Women in Tripura. Paragraph 1**

⁴⁶ Gender Development and the Status of Tribal Women: A Study of Tripura. Gender Roles in Tribal society. Paragraph 2.

⁴⁷ Gender Development and the Status of Tribal Women: A Study of Tripura. Gender Equity and Empowerment of Tribal Women. Paragraph 1



traditional society in every country is now a law and an eco-museum is a great way to preserve the geographical location and the indigenous society of every country. The government of Tripura has taken various steps the taking care of the tribe's community and the women of the community. They should follow the idea of the Ecomuseum. ⁴⁸“Museums without Walls” is a concept makes by heritage Saskatchewan (HS) and Museum Association of Saskatchewan (MAS) Canada discussed with the local communities of Saskatchewan. Canadian aboriginal community largely lives in the reserve and off-reserve in the province of Saskatchewan. The local community member determines their Eco museum concept and comes to a decision a Saskatchewan perspective on museums without walls. ⁴⁹MAS' Eco museums are one of the many ways to evolve and adapt to the needs of their communities, while HS Eco museums are an example of the demonstration of living heritage. ⁵⁰As a French model in the '70s, Ecomuseum was combined with sites, built structures with tradition, practices, customs with living heritage along with natural heritage such as local flora and fauna, wildlife habitats and geomorphology sites. ⁵¹Ecomuseum occupies a local community where people work together to adapt to a changing world through the meaningful and mindful development process, the process reflects their communities, landscape, and way of life. The narratives of Eco museums such as identification of landscape, identification of ethnic and minor communities, tourism development, a model village in China, heritage preservation, territorial and global images of communities, territorial and global identification and the length of geo-areas are important for the discussion of Eco museums. The territorial and global concept creates another narrative of sense about a place or sense of place. Exploring from France, the concept spreads worldwide from Europe as a western model of traditional premises. China has shown its interest deeply in the preservation of its traditional values, while in Canada it has been flourished within a system called the Saskatchewan Eco museum planning framework. According to MAS and HS of Saskatchewan, this concept provides a unique mechanism for community engagement through which people of the community learn from tangible and intangible heritage in its living form. Through community consultation, they agree to value and preserved a culture, called a culture of sustainability. Thus, their practices contribute to community development based on environment and culture equally.

⁴⁸ Ecomuseum Concept A Saskatchewan Perspective on "Museums without Walls." A Message from Heritage Saskatchewan and Museums Association of Saskatchewan. Paragraph 1.

⁴⁹ Ecomuseum Concept A Saskatchewan Perspective on "Museums without Walls. Context and Purpose of this Paper. Paragraph 2.

⁵⁰ Ecomuseum Concept A Saskatchewan Perspective on "Museums without Walls." Brief History. Paragraph 1.

⁵¹ Ecomuseum Concept A Saskatchewan Perspective on "Museums without Walls." A. Brief History. Paragraph 3.



Ecomuseum according to Saskatchewan Heritage and the Museum is a holistic approach to understanding and celebrating an authentic cultural landscape that has been created by nature, and by the human. It is a holistic approach to community engagement based on culture and tradition through which people can adapt and promote their region, heritage, and sense of place to the rest of the world. Model villages are an example of an Ecomuseum. Ecomuseum is a concept that helps people and communities to tell their stories in their ways and provides an opportunity to build up a dynamic and fluid relationship. According to the Saskatchewan Eco museum Planning Framework; the principles of Eco museums are; community-based relationship and involvement, authenticity, location defined by the people, experimental, dynamic and community-led, pride and identity, spirituality and personal discovery and expression, inclusive and collaborative agreement, social and environmental responsibility and building feedback for the decision making. These are the principles that provide the basis of the museum without walls which depends on community engagement and local ownership. The concept of an Ecomuseum is also a sustainability model that helps the economy and society nested within the environment and rests on a foundation of culture. The feature and a purposeful definition of ⁵²“Combining the nature and heritage perspectives to foster a sustainable community.” Therefore, this Saskatchewan-based Canadian model of aboriginal community development can be followed by the Government of Tripura for the tribe’s development. This model is an example of an eco-system that should be added with the development of a socio-economic perspective. It is a recommendation instead of advising. It is a total voluntary offer to the organizations of Tripura. The Government of Saskatchewan has achieved a lot of success through this model of indigenous development. Saskatchewan is a Canadian prairie province that has a major portion of Canadian aboriginal people.

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⁵²the Ecomuseum are “Combining the nature and heritage perspectives to foster a sustainable community.” What is an Ecomuseum? Paragraph 1



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