

# Sustainable Urban Development-An Analytical Case Study Of Grey Economy In The Balasore District, Odisha

<sup>1</sup>Sourav Pattanayak, <sup>2</sup> Sr.Prof. B. Srinagesh

<sup>1</sup>Research scholar, <sup>2</sup> Senior Professor

<sup>1</sup> Department of Geography,

<sup>1</sup> Osmania University, Hyderabad, Telangana, 500007, India

**Abstract:** This paper provides a theoretical analysis of the grey economy in the Balasore district, Odisha, exploring its dual impact on various socio-economic dimensions. Framed through the concepts of “umbra” and “penumbra” the influence of grey economy is examined across several factors which include factor and non-factor income, religious and cultural dynamics, labor and work force conditions and the land scape of local businesses. In this paper the “UMBRA” represents the negative impact of grey economy i.e. all the unregulated economic activities that create all the challenges for the formal economic systems, reduce government revenue and complicate regulatory oversight. These unstructured operations of grey economy often led to wage insecurity, reduce consumer protections and limitations in social services and finally create hurdle for the sustainable urban development. In contrast “PENUMBRA” symbolizes the positive impact of grey economy especially in providing livelihood opportunities to marginalized populations who may lack access to formal employment. For many local businesses and workers, the grey economy serves as a critical economic lifeline which offers flexible income option and fostering resilience among lower income communities. The positive effects are also evident in cultural and religious contexts, where informal economic exchange support local customs and community engagement, maintain socio cultural ties while contributing to the diversities. By analyzing these socio economic factors this study reveals the complex role of the grey economy in the Balasore’s socio-economic land scape. The grey economies umbra imposes barrier to sustainable development and regulatory compliance, yet its penumbra provides an adaptive economic frame work for those outside the formal economy. This research contributes to a deeper understanding of the grey economy’s dual impacts and offers a conceptual basis for policy strategies in similar socio -economic settings.

**Index Terms** - Grey economy, Sustainable Development, Factor and Non-factor income, Socio economic status, Umbra, Penumbra

## I. INTRODUCTION

The grey or informal economy is often termed the “shadow economy” because it operates outside the formal economic framework while remaining deeply influential in sustaining livelihoods, particularly in developing regions [1]. Known as the system-D economy, it consists of unregulated and untaxed activities that, though unofficial, support large sections of the population [1]. Its dual impact can be explained through the analogy of a solar eclipse, where the sun represents the formal economy, the moon symbolizes population-driven informal activity, and the earth denotes the affected region. When the moon blocks the sun, it casts a shadow, much like informal activities obscure formal economic processes [3]. The umbra reflects negative effects such as tax evasion, weak regulation, and fiscal loss, while the penumbra represents positive outcomes including employment generation, survival opportunities, and grassroots entrepreneurship. Shaped by local socio-economic conditions, the grey economy provides immediate economic relief but can distort long-term development if left unregulated [2]. Despite operating outside official systems, it strongly influences sustainable urban development [1]. Using Balasore district of Odisha as a case study, this perspective underscores the need for inclusive policies that integrate informal activities into the formal economy to achieve sustainable and equitable urban growth [3].

### 1.1 Literature Review:

Economic activities are broadly classified into the formal and informal (grey) economy [10]. The formal economy includes government-regulated establishments such as public departments, PSUs, MNCs, and private firms with ten or more workers [9]. Although it employs only about 6–10% of India's workforce, it provides better wages, job security, and social protection [9]. In contrast, the informal or grey economy comprises small, unregistered enterprises with fewer than ten workers and employs nearly 90–94% of the workforce, often with low pay, weak job security, and poor working conditions [5]. Despite rapid economic growth, most Indian workers remain informally employed, contributing nearly half of GDP [5]. Characterized by cash transactions, tax evasion, and minimal regulation, the grey economy is prevalent in sectors such as street vending, domestic work, and small manufacturing [4]. While workers lack legal protection and social security, the grey economy remains vital by generating employment, supporting livelihoods, encouraging entrepreneurship, and providing economic flexibility [10], [4]. Its scale and influence vary across countries, shaped by demographic pressures, regulatory frameworks, and socio-economic conditions [7].

### 1.2 Significance of Grey Economy in the Context of India and How It Affects the Indian Market:

The grey economy plays a crucial role in India due to its extensive reach and strong link with population dynamics, employment, and income distribution. It absorbs a large share of the workforce, especially in rural areas and among low-income groups where formal jobs are scarce, highlighting structural issues such as underemployment and labour informalization. Marginalized groups, including women and migrants, are overrepresented, often facing low wages, poor working conditions, and limited social protection, which deepens inequality. At the same time, the unregulated nature of the grey economy leads to tax evasion and unfair competition, constraining formal sector growth, innovation, and sustainable development [7].

First introduced by Keith Hart in 1971, the informal sector has gained growing importance in development literature. It examines the sector's impact on employment, earnings, productivity, and migration. Although often seen as marginalized and operating on the economy's fringes, the informal sector's potential for growth and livelihood sustainability validates its importance as a legitimate and viable economic sector.

The definition of "informal economies" is flexible and can vary. In economic literature, it typically refers to income-generating activities that occur outside of government regulatory frameworks [8]. This can be simply understood as earning money that is not reported for tax, social security, or labour law purposes, excluding illegal or criminal activities [11]. Globally, studies estimate that 2 out of 3 billion workers i.e. around 61% are part of the informal sector [6].

DATT (2007) examined the socio-economic conditions of workers in organized and unorganized sectors using data. The study revealed that 92% of the workforce was in the unorganized sector, facing higher poverty due to limited technology and weak market access in both agricultural and non-agricultural areas. In their study, KAPUR et al (2014) examined the living and working conditions of unorganized sector workers, highlighting stark disparities with the organized sector. They identified seasonal employment, lack of social security, poor health, harassment, inadequate wages and poor education for worker's children as key challenges faced by these workers.

BORA (2014) studied secondary and tertiary sector in large cities, examining internal migration and conditions for workers in Delhi, Haryana and Uttar Pradesh. The study found that despite economic growth the workers faced poor safety, medical and social security condition.

Kalyani (2015) highlighted that 90% of India's workforce is in the informal sector, which, despite of contributing significantly to GDP, suffers from low productivity compared to the formal sector.

Bharati et al. (2014) examined the condition of child labour in India's unorganized sector, focusing on construction, agriculture and domestic work. The study highlighted poor socio-economic conditions, low wages, lack of social security, seasonal employment, and issues such as poor health, harassment, unsafe housing, and limited access to education.

The Indian Labour and Employment report (2014) analyzed changes in India's labour market since economic reforms began. It examined labour institutions, employment types, and policies, revealing that around 92% of workers are in informal jobs, earning low wages with little to no social protection.

### 1.3 Objectives:

- (1) To examine the impacts of the grey economy on sustainable development in Balasore district.
- (2) To analyze the penumbra (positive impacts) and the umbra (negative impacts) of grey economy in Balasore area.

(3) To use solar eclipse analogy to simplify complex grey economy's dynamics.

## II. Research methodology

This paper aims to analyse the positive and negative impacts of the grey economy on urban development and the environment in Balasore district of Odisha.

### 2.1. Data Collection:

This research is based on experimental research design and it can be done by using both qualitative and quantitative data. Qualitative data- refers to non-numerical information which can be collected from text, audio, images, and visual tools like word clouds, timelines, and concept maps. In this study, it is gathered through focus group discussions and field observations involving government officials, community leaders, and informal workers.

Quantitative data – This data focuses on quantifying the collection and analysis of data. It is forayed from a deductive approach where emphasis is placed on the testing of theory shaped by empiricist and positive philosophies. Here in this research quantitative data can be collected from-

#### 1. Urban development indicators such as-

- Population growth rate
- Gross domestic product (GDP)
- Employment ratio
- Income inequality ratio
- Infrastructural development

#### 2. And grey economy activities in Balasore district from government's report, surveys, and database.

### 2.2. Data Analysis:

To analyse the qualitative data, we can employ thematic analysis and content analysis to identify themes, patterns, and perspective related to the impact of the grey economy on urban development and the environment. To analyse the quantitative data, we can use various statistical techniques, regression analysis, and spatial analysis to assess trends and correlations.

## III. Case study approach:

To examine the impact of grey economy in Balasore, representative case studies have to be selected such as street vending, informal manufacturing, and waste management. An in-depth case study has to be done to explore the contextual factors, dynamics and implication of grey economy activities on urban development and environmental sustainability. Analysis of policies and regulations on urban development, environment, and the informal sector in Balasore helps to assess the grey economy's impact on SDG Goal 8.

### 3.1. Negative and Positive approach of Grey Economy:

The grey economy can be metaphorically understood through the concepts of umbra and penumbra. Its negative effects resemble the umbra, a zone of complete darkness where formal economic activity is blocked, leading to revenue loss, weak governance, inequality, and instability that hinder sustainable development. Conversely, its positive aspects resemble the penumbra, a partial shadow where informal activities provide livelihoods, flexibility, and resilience, especially for vulnerable populations. Like the interaction of the sun (economy), moon (population), and earth (region), balanced alignment among economy, population, and space can minimize risks, enhance inclusivity, and promote sustainable urban and regional development.

### 3.2. Principles of Urban Development as follows:

- (i). Economic viability by which urban development must foster economic growth and job creation while ensuring long-term financial stability.
- (ii). Social equality in which urban development must bloom as inclusive development, which will provide equal opportunities for all of its inhabitants such as healthcare, education and housing.
- (iii). Resilience in which the urban development will enhance its ability to withstand and recover from economic, social and environmental shocks and stresses.
- (iv). Participatory Governance in which involving communities in decision making processes to ensure that development projects address local needs and priorities is done.
- (v). The principle of environmental protection which supports urban development by reducing ecological footprints, promoting green spaces, and encouraging sustainable use of energy, water, and waste.

### 3.3. Challenges and Opportunities in the Context of India:

India's urban areas face many challenges while achieving sustainable development such as rapid urbanization, overcrowding, inadequate infrastructure and environmental degradation. Issues such as- air and water pollution, waste management and traffic congestion which are exacerbated by poor planning and governance. Social inequalities are prominent where a large portion of urban population live in slums with limited access to basic services. But challenges always present unique opportunities. The youth population and growing advancement in technological field can drive innovative solution for sustainable development. Initiatives like smart cities mission and AMRUT (Atal mission for Rejuvenation and Urban transformation) aim to improve infrastructure, promote digitalization and enhance urban governance. Increasing public awareness, addressing challenges and using emerging opportunities, Indian cities can evolve into models of sustainable urban development which will safeguard the environmental sustainability for future generations.

**3.4. The Sustainable Urban Development and the Grey Economy:** The grey economy has a dual influence on sustainable urban development, comparable to the umbra and penumbra of a solar eclipse. Its negative dimension, like the umbra, weakens formal urban systems by eroding tax revenues, distorting fiscal structures, and deepening socio-economic inequalities. This constrains public investment in sustainable infrastructure, renewable energy, affordable housing, and essential services, while encouraging low-wage employment, unsafe working conditions, environmental degradation, and persistent urban poverty. Conversely, the positive side of the grey economy resembles the penumbra, offering partial illumination by supporting livelihoods and economic resilience. It generates employment where formal markets fail to absorb growing urban populations, particularly in developing regions, thereby reducing unemployment and social stress. Informal enterprises also enhance economic flexibility, as they can rapidly adapt to changing consumer demands and market conditions. Moreover, the grey economy functions as an incubator for innovation and entrepreneurship, allowing individuals to test ideas with minimal regulatory barriers, some of which later integrate into the formal economy. From a systemic perspective, the grey economy is adaptive and resilient, yet disruptive if left unmanaged. A balanced approach that mitigates its negative effects while harnessing its employment and innovative potential is essential for achieving inclusive, equitable, and environmentally sustainable urban development.

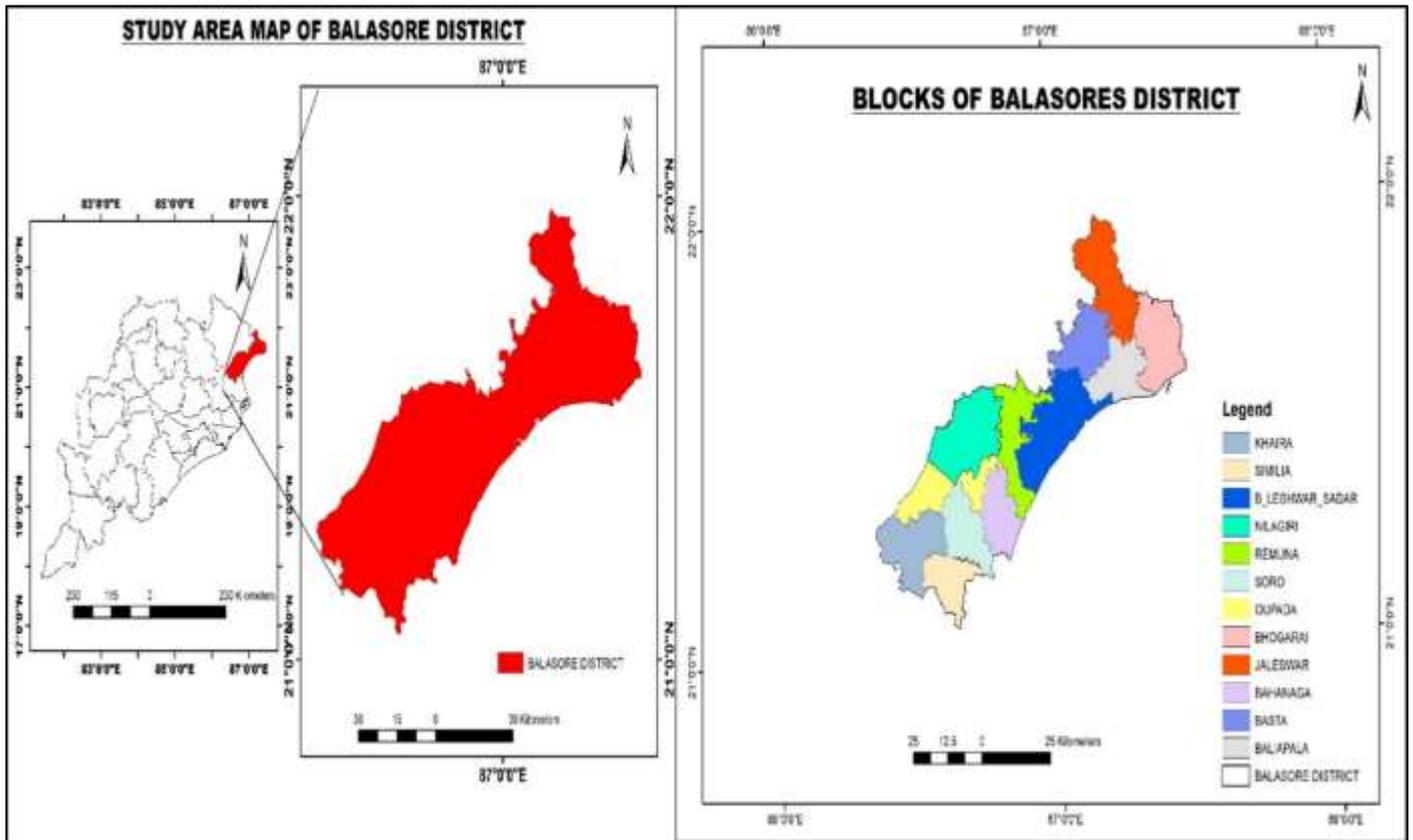
## IV. Results and discussion

### 4. A Case Study of Balasore:

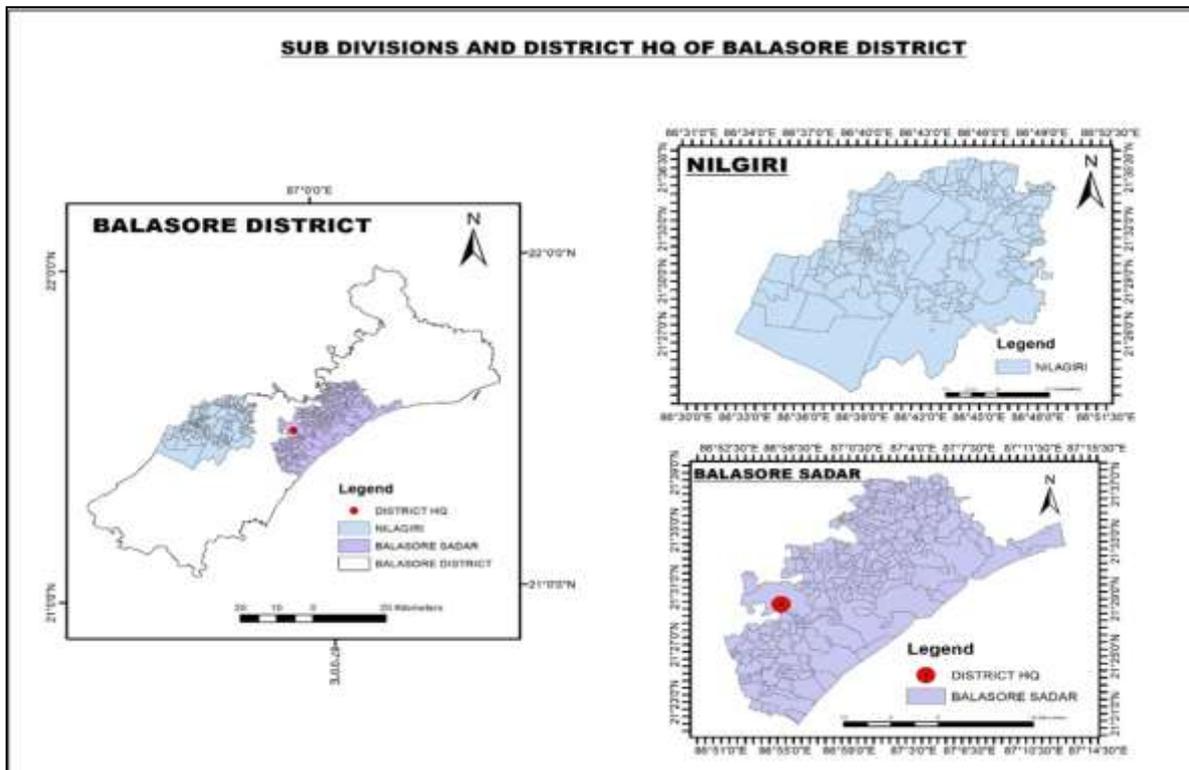
District of Odisha: Balasore is one among 30 districts of Odisha. It is the most north-eastern part of Odisha which lies between 21°.3' to 21°.59' North latitude and 86°.20' to 87°.29' East longitude. It covers an area of 3634 square kilo mete, which is approximately 2.3% of the entire area of Odisha. It is bounded by West Bengal in the north and Bay of Bengal in the eastern side. Two focal rivers of the state of Odisha i.e. The Budha Balanga River which originates from the Similia massif having length of 175 km. and The Subarnarekha River which originates near Nagri village of Ranchi in the state of Jharkhand having length of 395 km pass through Balasore district before blending in to the Bay of Bengal Situated at an altitude of 19.08 meters. The region displays a mix of three different forms of topographic regions- coast, plains, and hills.

**4.1. Socio-Economic Factors of Balasore District:** Experiencing the Umbra and Penumbra of Grey Economy: The northern most district of Odisha which is distinct for its rich historical, cultural, geographical and economical significance is "Balasore". It is also called as the 'Granary of Odisha' due to its fertile land which supports rich cultivation and high agricultural output. The Bay of Bengal's presence makes the district a centre of robust fishing industry with potential hub for maritime activities. This district has famous 'Chandipur beach' where the phenomenon of 'vanishing Sea' can be observed during low tide days. Additionally, Balasore is an important centre for Défense Research, housing the Integrated Test Range (ITR) where ballistic missiles are tasted. This high lightens its role in the national security. Culturally, Balasore holds a rich tapestry of festival, art and crafts.

The district is known for its historical sites and vibrant handloom industry especially the popular Balasore silk sarees. This makes it a unique blend of heritage and modern relevance. The following socio-economic factors are influenced by both the positive and negative impacts of the grey economy:



**Figure 1. Location map of the Balasore District**  
 (Source: Generated by the author based on the Census of India, 2011)



**Figure 2. Sub-divisions and head quarter of Balasore**  
 (Source: Generated by the author based on the Census of India, 2011)

#### 4.2. Factor Income and Non-Factor Income:

Factor income and non-factor income are the kind of terms used in economics to describe various types of income. Understanding the distinction between Factor income and non-factor income is important in national income accounting and analysis of grey economy. Factor income contributes to the calculation gross domestic product (GDP) while non-factor income does not.

#### 4.3. Factor Income:

There are different sources which act as factors of production from which the owners generate economy such as land, labour, capital and entrepreneurship. The income generated from these is defined as factor income. The core components of factor income are-

Wages and salaries- payments made by the owner to labour for their work. This payment includes all kind of compensation such as wages, salaries, bonuses and benefits

Rent- when someone uses the natural resources of some other person he has to make payment for the use.

Profit- when entrepreneurs take risk or do innovation or manage their business ventures in a way that is fruitful it gives profit to the entrepreneurs.

Interest- when earning is made from lending money or capital or by investing on something.

#### 4.4. Various Dimension of Factor Income- Distribution:

This dimension examines how income is distributed among production factors and reflects regional economic stability, while also revealing the significance of the grey economy. In rural and underdeveloped areas, informal activities often act as a safety net for those excluded from formal employment. Balasore's economy, supported by agriculture, small-scale industries, and services, relies heavily on informal labour, particularly in agriculture where income distribution is uneven and wages are paid in cash without records. During lean seasons, workers shift to grey activities to supplement income, reducing unemployment and poverty. However, the absence of contracts, social security, and legal protection leads to low wages, poor working conditions, and persistent inequality.

#### 4.5. Measurement of Factor Income:

This dimension helps to determine GDP and total income, which are important for economic policymaking. Unlike the formal economy, grey economy activities are often underreported in national income accounts, giving an incomplete picture of economic performance. Informal workers and businesses usually don't declare their earnings, which distorts regional economic data. Inaccurate income measurements can lead to poor policy decisions. For example, unemployment rates may appear higher if informal jobs are not counted. That's why this dimension is important in understanding the true state of the economy. It will help in identifying how local traders, artisans, farm workers, and small businesses earn. This information can help policymakers and investors create better support systems and improve access to government schemes, banking, and social security. This dimension includes-

Consistency - through which we can use standardized method and definition to ensure comparability and reliability over time across various regions.

Transparency - while collecting the data we should ensure the validating of data collection methods and accessibility of results so that it will be understandable to the stakeholders.

Time Factor - we must update the income data of both formal and informal economy in a regular interval of time so that it will reflect the current economic condition of the region.

Comprehensive method of data collection - we must capture all the sources of income including formal and informal sectors.

#### 4.6. Keynesian Theory of Factor Income and Relationship with Grey Economy:

Keynesian Theory of Factor Income was given by John Maynard Keynes. He argued that aggregate demand is the primary drives of economic activity and income distribution. This theory includes:

Multiplier Effect: It means when spending increases, people also earn more money and spend it too, which further boosts overall demand and economic activates. Like the formal economy, grey economy spending can also create a multiplier effect by boosting demand for goods and services. But its benefits are less visible and harder to measure.

Aggregate Demand: It is the total amount of goods and services people want to buy in an economy. This is used to determine how much is produced and how many people are employed. Even though not officially

counted, grey economy activities add to overall demand. In Balasore district, street vendors and artisans use their income to buy goods and services, which helps to increase production and create jobs.

**Intervention By Government:** According to the Keynesian theory, to stabilize the economy the intervention of the Governments is required. Fiscal policies help the government to manage the economy by collecting taxes and spending money. But in Balasore, the large grey economy makes this harder as many activities are unrecorded and unregulated. Therefore, it is difficult for the government to measure the overall demand. This also affects the Tax collection and weakens the government's plans to improve the economy

#### **4.7. Non-Factor Income:**

Non-factor income, or non-factor receipts, is a kind of money that doesn't come directly from work, land, capital, or running a business. Examples include gifts, remittances from family abroad, interest from overseas investments, and government transfers. This kind of income doesn't involve making goods or providing services. Still, it can help the economy by supporting spending and investment. For example, a country where many people work abroad may receive large remittances that boost its economy, even without producing anything locally. Non-factor income also plays a role in the informal or grey economy. Here's how they are connected.

**Remittances:** Abroad workers send money to home, which is often spent without being reported to authorities which fuels the grey economy. These funds may bypass formal financial systems and regulations and increases unrecorded economic activity. In Balasore, remittances from Odisha's migrant population i.e. both overseas and within India (like in Mumbai, Delhi, Hyderabad, and Surat) have a major impact as their families often use this money for unregistered small businesses, farming ventures, or home improvements. By avoiding taxes and regulations, such activities boost the local grey economy.

##### **4.7.1. Transfer Payments:**

This non- factor income includes Government transfer payments such as pensions, unemployment benefits and social security. These are the provisions which are meant to help people financially. However, some people might use this money in ways that avoid official systems.

##### **4.7.2. Cash Transaction:**

In this, instead of spending the money through normal channels where certain taxes are applied, people might prefer to pay in cash, so that their spending cannot be tracked or reported.

##### **4.7.3. Informal Activities:**

Receivers can use their benefit to buy from unregistered vendors and avoid taxes. In Balasore, many government transfer payment beneficiaries use their benefits to support informal vendors by investing in small, unregistered businesses that don't follow formal regulations. This helps them to stabilize their finances and increases informal economic activity. As a result, tax revenue and regulatory oversight may be reduced, which can hurt the district's economy.

##### **4.7.4. Charity and Informal Lending:**

Charity and informal financing can help to boost the grey economy. These unreported money dealings have no official records; hence they can't be tracked. In many developing countries, informal lending is common. In Balasore, people often lend money to friends or relatives without paperwork. For example, a neighbor might give money to help someone to start a street shop or a small home business. These informal loans don't involve banks or official agreements, and there's no need to pay high interest or follow strict rules. Though such system helps individuals financially but it reduces government tax collection and weakens regulation. Since the government doesn't track these activities, it creates challenges for proper economic planning and fair competition with formal businesses.

#### **V. The Role of Grey Economy in the Social Stratification:**

Social stratification is the hierarchical arrangement of social classes, castes and other groupings within a society. It plays a significant role in shaping economic condition of grey economy of a region. In India society is based on castes has been broadly divided into two categories i.e. upper caste and lower castes. Caste-based social divisions are deeply rooted in India and affect Hindus, Muslims, and Christians alike. Although each

religion teaches equality, historical and social factors but they have kept caste divisions alive. In places like Balasore district, this social stratification plays a big role in shaping the grey economy.

## **5.1. The Positive Aspect of the Economy Upon Upper-Caste Society:**

### **5.1.1. Economic opportunities:**

In Balasore district, the grey economy provides extra income and business opportunities for upper caste individuals. Temple priests often receive donations and payments for performing rituals, which usually happen outside formal economic systems. This gives them a steady, informal income. Similarly, traditional healers earn money through unrecorded payments for their services. Many upper caste individuals also run informal businesses like small hotels, local shops, or craft workshops. Though these businesses operate outside formal rules i.e. without paying taxes or following official guidelines but still create income and jobs within the community.

### **5.1.2. Autonomy and flexibility:**

The upper caste people also get significant autonomy and flexibility in grey economy. For instance, the temple priest and traditional healers can avoid bureaucratic red tape, formal regulation and taxes by operating informally. They are also free to change or switch to any grey economy work, like adjusting their prices or choosing activities that are more in demand.

### **5.1.3. Community engagement:**

By taking part in the grey economy, upper caste individuals in Balasore can strengthen their social ties. For example, major festivals they organize bring people together and promote unity. Charitable acts like giving food or helping others improve their social image. This not only provides support to poor and marginalized groups but also promotes togetherness in the district.

## **5.2. The Positive Impact of Grey Economy on the Lower Caste:**

### **5.2.1. Creating employment opportunities:**

Many lower caste individuals find work in small scale industries in Balasore such as weaving, pottery and carpentry. These jobs are informal, but provide crucial employment which is not available in the formal sector because of high eligibility criteria. Cobblers and blacksmiths in Balasore earn a living by offering their services directly to the society without formal business licenses and tax revenue.

### **5.2.2. Preserving and utilizing the skills:**

The traditional crafts people of Balasore preserve and utilize their ancestral skills in the grey economy. This helps them to keep alive their cultural heritage and provides a niche market for their production. Through the grey economy the lower caste people participate in community events and markets where they can use their cultural skills to generate a source of income.

### **5.2.3. Resilience during economic downturns:**

Lower caste people in Balasore who work in formal sector, during economic downturns can rely on the grey economy for generating an alternative income source, such as selling hand made goods or opening a small-scale business, thus the grey economy helps them to generate a new source of economy without the need for significant capital. The formal networks and mutual aid within lower caste and community in Balasore also provide support during times of need. For example, neighbors and relative often pool resources to help each other during economic hardships.

### **5.2.4. Social mobility and upgradation:**

The grey economy in Balasore helps the lower caste individuals in moving up socially by offering income, skill recognition, and community inclusion. For example, a skilled blacksmith from a lower caste can earn well, gain respect and cross traditional caste barriers. Similarly, when a lower caste woman starts a small home-based business-like weaving or handicrafts, she not only improves her status but also becomes a voice for her community. Her success sets an example and creates new opportunities for others.

### **5.2.5. Access to education:**

The income generated through informal economy allows lower caste families of Balasore to invest in their children's education, sometimes shattering the entrenched belief that a cobbler's son will inevitably become a cobbler, while a rich men's child will follow in their foot step. This shift not only paves the way for new opportunities but also challenges and transforms traditional social norms, fostering a more dynamic and inclusive future. The educated children from lower caste backgrounds are more likely to secure better-paying jobs in the formal sector. This transition from informal to formal economic participation represents how the grey economy helps to break the cycle of poverty and marginalization.

## **VI. The Negative Impact of Grey Economy on Social Stratification:**

The shadow economy which includes unregulated and unreported economic activities can significantly impact the social stratification in several ways, such as-

The grey economy often leads to substantial income disparities like health care, pensions, unemployment and insurance which ultimately exacerbate their vulnerability and marginalization.

Sometimes the grey economy limits the upward mobility. The workers of grey economy do not have formal qualification or experiences recognized by the formal sectors. This restricts their opportunities for upward social mobility.

The grey economy can perpetuate exploitation and poor working condition as for them labour laws and protections are not enforced. This disproportionately affects marginalized groups, entrenching their lower status.

### **6.1. The Negative Impact Faced by the Higher Caste Society:**

In Balasore, higher caste individuals who are not engaged in formal jobs often rely on the grey economy for their livelihood, leading to financial instability due to exclusion from stable income, social security, pensions, and health insurance.

Their lack of a formal financial background restricts access to loans or credit, hindering opportunities for investment in businesses, property, or education. Additionally, in a society where caste and occupation are deeply intertwined, participation in informal work can lead to stigmatization and social ostracism.

Traditionally respected roles, such as temple priests or Ayurvedic doctors, face a decline in social status when engaged in unregulated economic activities.

As high competition and limited formal opportunities push many into informal work like farming, street vending, or small trading, they experience reduced access to job benefits, credit, and social standing, reinforcing economic hardship and social marginalization.

### **6.2. The Negative Impact Faced by the Lower Caste Society:**

The lower caste communities of Balasore district traditionally engaged in occupations such as blacksmithing, cobbling, carpentry and craftsmanship, face significant challenging due to their dependency on grey economy. Through this informal sector has free entry and exit system and unregulated- untaxed economic activities but it lacks of formal recognition and legal protections.

Blacksmiths in Balasore once used to supply essential agricultural tools. But with modern alternatives, their market and social ties have declined. They are now excluded from many community activities and decisions, deepening their marginalization.

Such boundaries created by society lead towards limited earnings and prevent accumulation of saving. Due to this their families becomes vulnerable to financial shocks like natural disasters, pandemics and medical emergencies.

The Blacksmiths workshops in Balasore are poorly ventilated. This leads to prolong exposure to smoke and fumes from forging metals. They face severe health issues like bronchitis and asthma. The traditional method of grinding and polishing metal creates fine dust particles that are inhaled over time contributing to lung diseases.

Nilgiri subdivision in Balasore is known for its stone artefacts. Lower caste people and Tribal communities like the Santal, Ho, Munda, Bhumija, and Kol, who mainly depend on farming, often shift to stone carving when agriculture fails. Many uses traditional methods without safety gear, exposing themselves to silica dust which causes silicosis and TB. Working outside formal safety rules, they also face serious accidents from

heavy tools. Though the grey economy provides income but the lack of legal protection leaves them vulnerable, keeps them in poverty, and slows their social and economic progress.

## VII. The Effects of Grey Economy Upon the Primary Sector:

### 7.1. The Positive Effect:

The grey or informal economy includes all economic activities which are neither regulated or taxed by the government. In Balasore, the grey economy plays a major role in the primary sector—such as agriculture, forestry, fishing, and mining. This sector supports a large part of the population, and its dynamics are strongly influenced by the grey economy.

**In Agriculture:** Agriculture is backbone of Balasore's economy, as maximum rural employment depends on this. The grey economy enters into this sector through informal workers, unregistered farms, and barter systems. Many small farmers are not officially registered and sell their crops directly to customers at the local markets, avoiding rules and taxes. For example, in Balasore, many farmers sell at village harts (markets) that are not controlled by the government. These markets help farmers to avoid extra costs like market fees or taxes. Also, using informal workers helps them save money because they can agree on wages directly. In the farming off-season, the grey economy gives farmers another way to earn money.

**In Fishing:** Fishing is a key part of Balasore's economy, especially along its coastline and the West Bengal border. Many fishermen avoid the high costs and bureaucratic hurdles of licensing by selling their catch directly to consumers or middlemen in unregulated markets. In coastal villages like Jaleswar and Bhogra, this direct trade ensures immediate payment, bypassing formal market delays.

**Forestry:** The forestry sector plays a key role in the grey economy of Balasore, especially for tribal communities in villages like Baliapal, Nilgiri, and Kuldiha. Many locals depend on collecting and selling minor forest products, often through activities that fall outside the purview of formal regulations. These informal practices offer better profits by avoiding permits and operational costs.

**Mining:** Balasore district has several areas known for mining stones, sand, and minor minerals—such as Jaleswar, Nilgiri, Soro, Basta, and Balasore Sadar. In these areas, the grey economy is active due to unregulated mining. For example, sand mining along the Subarnarekha River in Jaleswar and Basta often happens without official permits. Nilgiri and Soro have major stone quarrying and mineral extraction activities. These materials are sold to construction companies and local builders through informal channels. While such operations support local livelihoods, they also cause environmental damage and result in loss of government revenue.

### 7.2. The Negative Effect:

The grey economy plays a key role in Balasore's primary sector by offering quick economic opportunities. However, it also brings challenges like loss of government revenue, lack of worker social security, and environmental issues such as riverbank degradation along the Subarnarekha.

**Loss of Government revenue:** Government revenue is essential for funding public services like healthcare, education, transportation, and overall development. Since grey economy activities often go unreported and untaxed, there's a major loss in tax collection. Without enough tax income, the government struggle to fund important projects and without proper financial records, policymakers are unable to understand the district's economic condition. This leads to poor planning and weak resource allocation.

**Lack of social security for workers:** Since the grey economy works outside the preview of formal regulations, the informal sector people of Balasore do not have that much of social security benefits which come with the formal employment, such as proper health insurance, pension plans and benefits from job. These lacks of social security leave workers of grey economy vulnerable to economic shocks and health emergencies. This precious situation can lead to unsustainable development of the district Balasore.

**Degradation of River banks and Environment:** Environmental degradation is a major consequence of the grey economy in Balasore, especially along riverbanks. The Subarnarekha River suffers from illegal sand mining, where unregulated extraction disrupts its natural flow and stability, leading to riverbank erosion. This causes loss of farmland, damage to aquatic ecosystems, and increased flood risks, resulting in long-term ecological and economic challenges.

**Weakening of Institutional trust:** The grey economy erodes the trust in institutions and governance. When farmers see others gain from illegal logging or unregulated fishing without restrictions, their faith in the legal system weakens, leading to more rule-breaking. For example, if illegal sand miners face no action, other farmers may also ignore rules. Legal farmers, who bear higher costs to follow regulations—like buying certified seeds and meeting standards—face unfair competition. This drives some out of the market or into informal practices, lowering efficiency and productivity in Balasore’s primary sector.

**Exploitation of labour:** In Balasore, the grey economy leads to poor labour practices in agriculture and fishing. The people who mainly depend upon primary economic sector face low wages, job insecurity and harsh condition due to the sense of regulatory oversight. This exploitation degrades their quality of life, reduces productivity and threatens the sustainability of primary sector of Balasore. This potentially sparks social unrest and worsening rural livelihoods.

## VIII. Conclusion:

An examination of the umbra (negative) and penumbra (positive) effects of the grey economy in Balasore district highlights its complex influence on socio-economic dynamics such as culture, religion, income distribution, social stratification, and the primary sector. Defined by untaxed and unregulated activities, the grey economy casts a dual shadow. Its penumbra side provides vital livelihoods, supports entrepreneurship, and sustains economic activity in areas where formal employment is scarce, particularly in agriculture and fishing. These informal practices quietly enhance resilience by absorbing unemployment and economic shocks. However, the umbra side reveals serious challenges, including tax and revenue losses, weak regulation, job insecurity, worker exploitation, and poor service delivery, all of which undermine human development and sustainable progress. The grey economy in Balasore can be likened to Young’s modulus, which measures a material’s ability to absorb stress and strain. It acts as a buffer by easing economic pressures, yet simultaneously places stress on the formal system through tax evasion and fiscal losses that limit public spending on healthcare, education, and infrastructure. Therefore, a balanced policy approach is essential to reduce its negative impacts while harnessing its resilience-building and livelihood-supporting potential for inclusive and sustainable development

However, just as a material with high Young’s modulus can withstand stress, a balanced approach is needed to manage the negative impacts and harness the positive aspects of the grey economy, such as-

Formalization of informal businesses and enterprise into the formal sector through simplified registration processes, tax incentive and support for compliance with regulations.

Strengthening institutional frameworks which include investing in technology and training for enforcement agencies to detect and curb illegal activities effectively.

Implementing education and awareness programs to inform the public about the benefits of joining the formal economy and the risks of relying on the grey economy’s shortcuts, such as tax evasion and manipulating regulations.

Providing access to credit and financial services for small business and entrepreneurs in the informal sector, so that it will empower the individuals to grow their business and transition to the formal economy.

Expanding the social protection schemes in Balasore district such as MGNREGS, Public Distribution System, Pradhan Mantri Awaas Yojana, Pradhan Mantri Jan Dhan Yojana, Indira Gandhi National Old Age Pension Scheme etc to include informal workers.

## IX. ACKNOWLEDGMENT

The author sincerely thanks Sr. Prof. B. Srinagesh, Senior Professor, Department of Geography, Osmania University, Hyderabad, for his valuable guidance and academic support throughout this study. Gratitude is also extended to Osmania University for providing the necessary research facilities and to the people of Balasore district, Odisha, for their cooperation and support.

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