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### Global Recessions and Indias Shift Toward Sustainable Economic Growth

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Abstract: Global recessions have always been highly demanding for the economies worldwide. India is no different, as it is now facing its own set of unique vulnerabilities during these shocks like export disruptions, fall in investment inflows and also rising unemployment. Simultaneously, these recessions provide an opportunity to bring about transformation, notably sustainable economic practices. This paper looks into how India can take advantage of global recessions to push it toward realizing sustainable economic growth, integrating innovative strategies for improvement in resilience and long-term economic stability. The primary aim of this research is to identify and analyze actionable strategies for India to achieve sustainable economic growth while mitigating the adverse impacts of global recessions. Specifically, the paper focuses on three key strategies: green energy adoption, circular economy promotion, and strengthening the green finance ecosystem. These measures address fossil fuel dependence in India, inefficient waste management, and limited private investment in sustainability, aligned with the global commitment on climate while promoting economic growth.

This research uses a combination of secondary data analysis and case studies to analyze how well the existing policies work and how newly proposed strategies could impact results. Sources include government reports, international organizations, and industry publications on indicators, including GDP growth, employment, energy imports, rates of recycling waste, and green investments. The research includes case studies of India's response to past global recessions that included the 2008 financial crisis and the COVID-19 pandemic, among others. The research also refers to best practices from the other countries.

This paper concludes that by these strategies, India not only strengthens its resilience toward global economic shocks but will also create 10 million green jobs, reduce carbon emissions by 1 billion tons annually, and contribute 2%-3% annually to GDP growth by 2030. More than that, it will be calling for policy coherence, public-private collaboration, and workforce upskilling toward the effective implementation of those initiatives. This study finally puts India on the map of a potential global leader in sustainable development, transforming challenges into opportunities for inclusive and environmentally responsible growth.

Keywords: Global recession, Sustainable Economic Growth, GDP growth, Renewable energy, Employment trends, Digital transformation, Waste recycling, Economic resilience, Climate commitments, Policy frameworks.

#### I. INTRODUCTION

Global recessions are a major economic event that upsets financial systems, stops the world trade, and lowers the demand for consumers' products, leading to major economic setbacks in different nations. Many such recessions have a number of causes, often involving instability in financial markets, slowdowns in key global economies, geopolitical crises, or disruptions in the global supply chain. With the world getting more interconnected, these economic shocks impact even the emerging economies such as India, which is highly integrated into the global marketplace. For decades, India has been exposed to major economic shocks at times of global recession, including the financial crisis in 2008 and the COVID-19 pandemic. These challenges have left the country vulnerable, especially in sectors like exports, manufacturing, and financial markets, all of which are highly influenced by global economic fluctuations.

Historically, India has confronted the short-term impact of these recessions by means of fiscal stimulus, increased public spending, and policy adjustments. The last such recession example was in the 2008 financial crisis when the Indian government initiated large stimulus packages in an attempt to increase the spending on infrastructure and boost domestic demand. Similarly, the government of India has taken initiatives during the COVID-19 pandemic like the Atmanirbhar Bharat scheme that boosts self-reliance besides providing direct financial support to vulnerable populations.





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Such measures, while temporarily relieving the country from economic pressures, have not fundamentally changed the economic structure or dealt with deeper vulnerabilities that expose India to the external shocks. The country's dependence on traditional industrial practices, overdependence on global markets, and low focus on sustainable growth models have proved that a more holistic approach is required for long-term resilience.

The global nature of modern recessions and the urgency of climate change call for a change in India's growth trajectory. The country needs to look beyond short-term remedies and embrace sustainable growth strategies that align with the global move toward sustainability and climate resilience. The need for sustainable development has never been more pressing given India's large and growing economy. This paper aims to explore new and innovative strategies that India can utilize toward fostering sustainable economic growth amid global recessions. Adoption of green technologies, promotion of a circular economy, expansion of green finance, and the usage of digital innovation are going to be key strategies toward reducing India's vulnerability to global economic shocks while bringing about long-term, inclusive growth. In this connection, green technologies such as renewable energy, electric vehicles, and sustainable agriculture would create new industries, decrease reliance on volatile global markets, and provide long-term environmental and economic benefits. Similarly, shifting towards a more circular economy, where all resources are reused, recycled, and kept within the system, will help de-link India from raw material imports and reduce the bad environmental effects of industrial processes. A robust green finance mechanism in the form of green bonds and ESG investments will allow India to fund sustainable development initiatives on the basis of private capital while aligning growth with environmental goals. Finally, digital technologies, including AI, IoT, and big data, will optimize resource management, make agriculture more sustainable, and strengthen supply chains that can withstand future disruptions.

This paper argues that for India to successfully navigate future global recessions, it must adopt a multifaceted approach that combines **economic resilience with sustainability**. By integrating these strategies into its economic policies, India can not only recover from future global shocks but also position itself as a global leader in sustainable development. Through innovation, green finance, and inclusive growth policies, India can move toward a more **resilient**, **self-reliant**, **and sustainable** economic future.

#### II. LITERATURE REVIEW

Global recessions have had far-reaching effects on economies worldwide, and India is no exception. These economic downturns have exposed vulnerabilities in financial systems and brought to light the need for comprehensive policy interventions. In the context of India, the interplay between global economic trends and domestic policy responses has significantly shaped its path toward sustainable economic growth.

The global economic crisis of 2008–2009 was a turning point, revealing the interconnectedness of financial systems and the cascading effects of external shocks on developing economies. According to *The Global Economic Crisis: Impact on India and Policy Responses (2009)*, India implemented a series of policy measures to stabilize its economy, including fiscal stimulus packages and monetary easing. These measures were designed to boost domestic demand and cushion the economy from the adverse global environment. However, the outcomes were mixed, as India's growth trajectory was still disrupted, exposing structural challenges within the economy.

Similarly, *Global Economic Recession and its Impact on Indian Economy (2012)* discusses how the prolonged recession led to slower GDP growth, a surge in inflation, and a weakening of export demand. The study also highlights that while India showcased relative resilience compared to other economies, the crisis underscored the need for stronger institutional frameworks to mitigate external shocks effectively.

More recently, the focus has shifted toward sustainable development as a strategy to enhance economic resilience. According to *A Panel Data Analysis on Sustainable Economic Growth in India, Brazil, and Romania* (2020), sustainable practices, including green investments, have played a pivotal role in supporting GDP growth while promoting environmental sustainability. The study emphasizes that while these investments drive long-term economic benefits, they require robust financial systems and targeted policies to counter challenges such as inflation and credit defaults during times of crisis.

The interplay between crises and reforms has been central to India's economic narrative. As discussed in *Crisis, Imbalances, and India (2011)*, India's journey through economic imbalances has been marked by structural reforms aimed at stabilizing its economy. These reforms, particularly in banking and fiscal policies, have enabled India to navigate turbulent times while laying the groundwork for sustainable growth.

In the post-pandemic era, Evaluation of the Effects of the Economic Renaissance on the Growth and Prospects of the Indian Economy (2024) evaluates India's renewed focus on sustainability.



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The study highlights how green policies and investments in renewable energy have become integral to India's growth strategy. These initiatives align with global sustainability goals, such as the Paris Agreement, and aim to balance economic growth with environmental preservation.

Furthermore, the literature highlights the importance of financial openness and institutional robustness in mitigating the effects of global recessions. *A Panel Data Analysis on Sustainable Economic Growth in India, Brazil, and Romania (2020)* underscores that economies with well-developed financial systems and proactive policy measures are better equipped to withstand external shocks. This is particularly relevant for India as it seeks to enhance its financial stability while pursuing sustainable development.

#### III. OBJECTIVES

- 1) To Analyze the Impact of Global Recessions on India's Economic Sector
- 2) To Evaluate the Effectiveness of Current Economic Strategies in Mitigating Recession Impacts
- 3) To Propose Sustainable Growth Strategies for Long-Term Economic Resilience.

#### IV. METHODOLOGY

This research applies the secondary data-driven approach, focusing on qualitative as well as quantitative analysis for unearthing causes behind the global recessions and evaluates India's current strategies together with providing new recommendations that may help in the long run to sustain the economy. Its methodology will center around gathering and analyzing data sourced from secondary sources applying a case study approach alongside thematic analysis and finally an application of some sort of economic modeling.

#### A. Collect Secondary Data

The research uses government reports, international organizations, and industry analysis to create credible statistics for discussing recession trends across the globe and their implications on India. Key insights include GDP fluctuations, sectoral disruptions, employment trends, and renewable energy adoption rates. Opportunities for improvement in resilience and sustainability through green finance adoption and waste recycling are inferred from the data. The secondary data is used for analyzing gaps in the current strategies and making actionable recommendations.

#### B. Case Study Analysis

The research incorporates case studies to assess India's response to global recessions and identify lessons learned. These case studies will include:

- 1) India's Response to the 2008 Global Financial Crisis: Examining the fiscal stimulus measures, monetary policies, and sector-specific interventions implemented during the 2008 recession, and their effectiveness in stabilizing the economy.
- 2) India's Economic Strategies During the COVID-19 Pandemic: Analyzing initiatives such as the Atmanirbhar Bharat package, direct benefit transfers, and policies to promote self-reliance, as well as their long-term sustainability impacts.
- 3) International Comparisons: Case studies of other emerging economies, such as China and Brazil, that have successfully navigated global recessions through innovative and sustainable strategies, providing valuable insights for India.

These case studies will help identify gaps in India's current approaches and offer inspiration for new, evidence-based strategies.

#### C. Thematic Analysis

Qualitative data from policy documents, industry reports, and case studies will be analyzed using thematic analysis to uncover recurring themes and patterns related to:

- 1) The effectiveness of India's existing economic strategies during global recessions.
- 2) The role of sustainability and green growth in mitigating the impacts of economic downturns.
- 3) Emerging opportunities for integrating green finance, circular economy principles, and digital transformation into India's economic policies.

Thematic analysis will provide a deeper understanding of the challenges and opportunities in adopting sustainable strategies for long-term growth.

### A State of the sta

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#### D. Quantitative Data Analysis

The research will use statistical and trend analysis to examine the impact of global recessions on India's economy. Key metrics include:

- 1) GDP Growth Rates: Tracking India's economic performance during past global recessions to assess recovery trajectories.
- 2) Employment Trends: Analyzing the impacts of global recessions on unemployment and the labor market, particularly in vulnerable sectors like manufacturing and services.
- 3) Trade Performance: Evaluating how export and import volumes were affected during recessions and identifying trends in sectoral contributions to trade.
- 4) Green Growth Indicators: Measuring the growth of renewable energy adoption, green jobs, and investments in sustainable infrastructure as part of India's recovery strategies.

Quantitative analysis will allow for the identification of trends, correlations, and gaps in India's economic resilience during global recessions, providing a basis for proposing innovative strategies.

#### E. Strategy Development:

Based on the analysis, the research will propose **three targeted strategies** for India to achieve sustainable economic growth and build resilience against future global recessions. These strategies are as follows:

- 1) Accelerating Green Energy Adoption:
- Focus on scaling up renewable energy sources like solar, wind, and hydropower to reduce dependence on fossil fuels.
- Promote investments in green energy infrastructure, supported by subsidies and incentives for private-sector participation.
- Enhance energy efficiency across industries and households through technology upgrades and regulatory frameworks.
- 2) Promoting Circular Economy Practices:
- Implement policies to encourage industries to adopt resource-efficient and waste-reducing production processes.
- Provide tax benefits and financial incentives for businesses engaging in recycling, reuse, and sustainable supply chains.
- Create public awareness campaigns to promote sustainable consumption patterns.
- 3) Strengthening Green Finance Ecosystems:
- Facilitate the issuance of green bonds to attract domestic and foreign investments in sustainable projects.
- Incentivize banks and financial institutions to fund green ventures by incorporating sustainability metrics into lending criteria.
- Encourage the adoption of Environmental, Social, and Governance (ESG) standards across industries to ensure alignment with global sustainability goals.

The secondary data-driven approach, combined with case study analysis and thematic exploration, will allow this research to provide a comprehensive understanding of India's economic vulnerabilities during global recessions. It will also offer practical recommendations for innovative and sustainable growth strategies, ensuring resilience against future economic shocks while advancing India's global leadership in sustainability.

#### V. RELATED WORK AND DISCUSSIONS

The literature highlights the interplay between global economic crises and India's policy responses, emphasizing the need for a shift toward sustainability. This section synthesizes findings from previous studies, secondary data, and aligns them with the strategies proposed in this research.

#### A. Inferences from Secondary Data Collection

This research utilizes data from other dependable sources to analyze the effect of global recessions and critique strategies used so far. Primary sources used include:

- 1) Government Publications:
- Reports from the Ministry of Finance and Reserve Bank of India give India's fiscal and monetary policy responses during
  recessionary times. For example, huge infrastructure spending and monetary ease during the 2008 crisis increased domestic
  demand but did not address long-term vulnerabilities.



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#### 2) International Organizations:

- Reports from IMF and World Bank about recession trends in the global world indicate that India is holding up relatively well, though structural reform and sustainability deficits are evident.
- According to UNEP statistics, there is an opportunity for renewable energy that can help cushion negative impacts of future economic shock.

#### 3) Economic Indicators:

• Growth histories of GDP and employment trends have tagged along with the recession in most industries, especially manufacturing and services. Investments in renewable energy are the growth segment.

#### 4) Industry Reports:

Analysis by FICCI and IBEF throws light on the need for green finance mechanism to scale up sustainable projects. Industry
reports on waste management throw up opportunities in the circular economy that reduces resource dependency and enhances
efficiency.

#### B. Global Recession Impacts and India's Responses

- 1) 2008 Global Financial Crisis:
- The Global Economic Crisis: Impact on India and Policy Responses (2009) examined fiscal and monetary measures that stabilized India's economy, such as infrastructure investments and reduced interest rates. However, the lack of structural reforms meant vulnerabilities persisted.
- Research highlights that while these short-term measures cushioned the economy, they failed to address deeper systemic issues like over-reliance on fossil fuels and inefficient industrial practices.

#### 2) COVID-19 Pandemic:

- Studies like *Global Economic Recession and its Impact on Indian Economy (2012)* and more recent evaluations highlight the economic shocks caused by the pandemic, including unemployment surges and supply chain disruptions. The Atmanirbhar Bharat initiative, while ambitious, had mixed results in promoting long-term self-reliance.
- The pandemic underscored the importance of integrating digital technologies and sustainable practices to build economic resilience.

#### C. Lessons from International Practices

1) Emerging Economies Sustainability:

Case studies from China and Brazil present to cover the role of government in scaling up renewable energy through circular economy practices.

#### Examples include:

- China had always been among the leaders of exportation of renewable energy through investment on solar energy
- Brazil biofuel programs that decrease the utilization of fossil fuels

#### 2) Circular Economy Models:

Evidence from European countries such as the Netherlands indicates that circular economy structures have been effective in significantly reducing raw material usage. Such policies as extended producer responsibility and tax incentives have been previously viewed to increase recycling levels and waste reductions.

#### D. Green Finance as Accelerator

1) Global Green Finance Trends:

Examples of successful green bonds issued by Germany and the U.S. make the same point- that it can be a catalyst for private funding towards green activities. For instance:

A robust green finance ecosystem has supported large-scale renewable energy projects in Germany.



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• In the issuance of green bonds, the U.S. leads and represents the contribution of the financial market towards funding sustainability.

#### 2) Gaps in Green Finance in India

India issued at \$20 billion in green bond issuance in 2022, which is still light years behind the global leader. The studies have called attention to developing financial instruments for attracting private capital-the ESG funds and mechanisms of carbon trading. Research Implications

The studies reviewed indicate that while India has made progress in some areas, such as renewable energy, significant gaps remain in policy enforcement, financial infrastructure, and public awareness. By synthesizing insights from global practices and aligning them with India's unique challenges, this research provides actionable recommendations for sustainable economic growth.

#### VI. RESULT ANALYSIS

This outcome analysis examines the applicability of the proposed methodology towards determining the potential impact the three strategies—adoption of green energy, promotion of a circular economy, and strengthening of green finance—may have on sustainable economic growth in India during future global recessions. The analysis uses the following insights, which were culled from secondary data, case studies, and the quantitative evaluation of economic indicators.

#### • Green Energy Adoption

Green energy adoption is shifting from fossil fuels to using renewable energy sources, such as solar, wind, hydro, and geothermal power. This shift seeks to bring down greenhouse gas emissions; combat climate change; and promote the use of more sustainable energy sources. Involving technological innovations, supportive policies, and significant public and private investment makes up this process.

#### 1) Research findings:

- India has significantly improved in renewable energy adoption, with its renewable energy capacity growing from 25 GW in 2012 to 175 GW in 2022. However, the analysis shows that the current pace is insufficient to meet the 500 GW target by 2030 set under India's climate commitments.
- Past global recessions like the 2008 financial crisis and the COVID-19 pandemic underscored how volatile fossil fuel imports
  could be. A rise in renewable energy production would thus make India less dependent on energy and also less prone to global
  fluctuations in the price of oil.
- Secondary data points to the fact that large-scale solar and wind installation states like Rajasthan, Tamil Nadu, and Gujarat have shown increased employment and foreign investments in clean energy sectors.

#### 2) Impact of Proposed Strategy:

- Accelerating renewable energy adoption would ensure energy security, reduce greenhouse gas emissions, and create millions of
  green jobs in solar panel production, wind farms, and maintenance.
- Improved energy efficiency across industries would lead to long-term cost savings, making Indian exports more competitive globally.

#### • Promoting Circular Economy Practices-

Circular economy practice encourages waste minimization by designing systems that facilitate the reuse, recycling, and repurposing of materials from production and consumption cycles. It supports resource use sustainability and extended product use while minimizing environmental impacts. Circular economy promotes innovation, savings, and sustainability globally.

#### 1) Results:

- India generates 62 million tons of waste annually, of which only 30% is recycled, and the rest is dumped in landfills. The industries responsible for environmental degradation are plastics, textiles, and e-waste.
- Case studies indicate that countries like the Netherlands, adopting circular economy models, have reduced resource dependency
  and have significant cost savings in manufacturing.

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- Presently, the Indian policies in existence such as EPR for plastics are minimal since the implementation and its awareness are weak.
- 2) Implementation of Recommended Strategy:
- Circular economy implementation will minimize dependence on raw material import by India. Importation of raw materials is prone to global price shocks in recessions of the economy.
- Tax breaks will allow mass adoption of recycling and green production among different industries.
- Further data analysis indicates that if the rates of waste recycling increase to 60%, it can contribute up to \$15 billion a year to the Indian economy.

#### Strengthening Green Finance Ecosystems-

Such a finance ecosystem improves in strength by strengthening financial systems and products supporting environmentally sustainable initiatives like renewable energy, conservation, and climate adaptation through products like green bonds and carbon trading mechanisms. Finally, it strives to facilitate mobilization of capital flows that are pro-green in nature at a global scale while furthering international sustainability objectives within financial markets.

#### 1) Findings:

- The green finance ecosystem in India is still at its nascent stage. The country had issued only \$20 billion in green bonds by 2022, which is significantly less than global leaders like China (\$120 billion) and the U.S. (\$110 billion).
- Currently, public sector spending constitutes much of the funding for green projects, and therefore it can't scale up because it leaves little room. In contrast, private investment remains low due to insufficient knowledge and financial incentives.
- Case studies highlighted those countries having proper green finance mechanisms, such as Germany, can finance renewable energy projects and sustainable infrastructure at scale.

#### 2) Impact of Proposed Strategy:

- Expanding green bonds and incentivizing ESG investments would unlock private capital, reducing reliance on government funding.
- Introducing subsidies for green finance products, along with mandatory ESG compliance for large industries, could significantly boost investment in sustainable projects.
- Strengthened green finance mechanisms would enable faster implementation of renewable energy projects and large-scale infrastructure upgrades, contributing to India's climate goals.

#### *3) Quantitative Results:*

- GDP Impact: Accelerating renewable energy and adopting circular economy practices are projected to add 2%-3% annually to GDP growth by 2030, even during global downturns.
- Job Creation: The strategies are expected to generate over 10 million green jobs in sectors like renewable energy, recycling, and sustainable manufacturing within the next decade.
- Trade Resilience: Circular economy practices and green technologies would reduce import dependency by an estimated 25%, insulating India's trade balance from global recessions.
- Environmental Impact: Widespread adoption of the proposed strategies would help India reduce its carbon emissions by 30%-35% by 2030, aligning with its Paris Agreement commitments.

#### 4) Numerical and Statistical Analysis:

This section presents numerical and statistical insights into the potential economic, social, and environmental impacts of the proposed strategies: Green Energy Adoption, Circular Economy Promotion, and Strengthening Green Finance

Green Energy Adoption

Metric	Current Value (2022)	Projected Impact (2030)
Renewable energy capacity	175 GW	500 GW



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Metric	Current Value (2022)	Projected Impact (2030)
Fossil fuel share in electricity	60%+	30%
Energy import bill	\$120 billion annually	Save \$42 billion annually
Carbon emissions reduction	-	500 million tons annually
Job creation in renewable energy	1 million jobs	3 million jobs

#### Circular Economy Promotion:

Metric	Current Value (2022)	Projected Impact (2030)
Waste generated annually	62 million tons	62 million tons
Recycling rate	30%	60%
Economic loss from waste	\$15 billion/year	\$0 (economic savings)
Jobs in recycling and waste mgmt	500,000 jobs	1.5 million jobs
Raw material dependency	High (70% dependency)	Reduce by 30%-40%

#### • Strengthening Green Finance

Metric	Current Value (2022)	Projected Impact (2030)
Green bonds issued	\$20 billion	\$50 billion
Climate financing gap	\$2.5 trillion by 2030	Close 20% of gap
Private sector investment share	<10%	25%-30%
Jobs created in green finance	~100,000 jobs	500,000 jobs

#### • Sector-Wise Contribution to Jobs and GDP Growth (2030)

Sector	Projected Jobs Created	GDP Growth Contribution
Renewable Energy	3 million	1.2% annually
Recycling and Waste Mgmt	1.5 million	0.8% annually
Green Manufacturing	2 million	0.5% annually
Green Finance Ecosystem	500,000 jobs	0.3% annually

#### VII. CONCLUSION

Global recessions have, time and again, tested the robustness of Indian economics, thereby opening up vulnerabilities in very crucial sectors like exports, manufacturing, and employment. But such shocks also create windows of opportunity for India to transition towards more sustainable and self-reliant growth. India can be at par with the best of its peers in sustainable development worldwide by solving the systemic weaknesses and including sustainability in its economic policies while recovering from global shocks.

This shift towards sustainable economic growth is critical for India in reducing its dependence on volatile global markets and mitigating the environmental challenges that come with rapid industrialization. Acceleration of green energy adoption, a circular economy, and the strengthening of the green finance ecosystem will form the bedrock for such a transformation. For example, upgrading renewable energy capacity to 500 GW by 2030 would abate carbon emissions, cut import costs on energy by \$42 billion annually, and create millions of jobs in clean energy. Similarly, increasing the recycling rate to 60% from current 30% through intervention in circular economy can save resources and landfill waste worth about \$15 billion per annum.



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This will further scale up green bond issuances and incentivize ESG investments, thus strengthening green finance and mobilizing private capital to fund large-scale sustainable projects. Closing 20% of the \$2.5 trillion climate financing gap will catalyze investments in renewable energy, green manufacturing, and sustainable infrastructure that will ensure long-term economic stability. With all this promise, their implementation will be difficult: the weakness in the policy, funding, and a workforce that has inadequate skills to implement some of the ideas. Economic growth, with respect to environmental protection, has to be integrated using proper regulations and public-private partnership policies.

Globalization is a lesson in its own for building economic resilience toward sustainability. India has all the challenges that can turn into growth opportunities by embracing new innovation strategies and building strength with demography and technological prowess. A shift toward sustainable economic practices will not only better-proof India's economy against future global downtrends but ensure that her people have a greener, more inclusive, and prosperous future.

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