THE CIRCULAR ECONOMY–A TRANSFORMATIVE RESILIENCE STRATEGY

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ABSTRACT

The devastating social, economic and mental disruption caused due to pandemic has forced the decisionmakers to rewrite the script and opens up a way for transformative resilience, green and more digitally enabled strategies and recovery leading to a next wave of economic prosperity. Prior to the pandemic, many recognized the need for a new economic model that is less environmentally damaging, not much dependent on the globalized linear supply chain, cheap raw material and is less wasteful. Post pandemic crisis calls for a need to transition to a new thinking, resilience, and sustainable and circular way of doing business in alignment with other global challenges. In this reference, this study provides an insight into what resilient circular economy strategies looks like post Covid-19. Also, the study highlights the Challenges and opportunities created by resilient circular economy (CE) towards a sustainable business model. For this purpose, a semi- structured interviews are conducted with 23 executives across industries on resilience and CE. The study concludes that the transition from old linear model to a new closed loop model is not as easy as it looks like, it requires a thoughtful collaboration, creating synergies between the systems, participation, resilience mindset (which involves rethinking, redefining, and reinventing our priorities, resources, skills), political momentum, connectivity, diversity and most importantly systems thinking. Study is conceptual and qualitative in nature. Analysis of interviews together with the literature forms the basis of the research study. The study suggest that the circular economy must embed a strong sociological basis to manage both slow social variables such as company culture, employee's mindset, human capital, worker habit and feedbacks.

Keywords: Circular Economy, Resilience, Synergies.

INTRODUCTION

The terrible impact of Covid-19 pandemic caused the businesses, government, and household to focus on short term crisis management – which is completely logical. But does just restoring our old linear model will help us to fight against the most pressing challenge we faced or the ones to come in future? The answer to the above question lies in transitioning from a linear "*take-make-dispose*" economic system to "*close the loop*" economic system. This new system is called "*Circular Economy*", which could help us in recovering by creating value through recycling waste in different areas. The concept of CE has been gaining momentum since late 1970s. But now various agencies have tapped into the opportunities of CE, for example Mckinsey, Apple, Google, Nike etc. through the support of Ellen MacArthur Foundation (EMF 2013a). Ellen MacArthur defines CE as "*an industrial economy that is restorative or*

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regenerative by intention and design" (EMF, 2013b). The circular model can be interpreted as a systematic long-term process of co-evolution between an environment and human being whose values must be rediscovered and regenerated (Medici et al., 2018).

Based on the above contributions, we have defined Circular Economy (CE) as "*an observational method which extends the life cycle of the products by sharing, reusing, refurbishing and recycling existing products as long as possible thereby identifying synergies between different actors involved, reducing emission and creating further value*".

To ensure a smooth transition to circular economy, it is imperative to integrate resilience into our national recovery plan to reduce the risk of unexpected surprises and stress. It can act as an important catalyst for recovery action. Resilience can be defined as the "*ability of the system (economic, social, political, geographical, and cultural) to recover from a shock such as global pandemic, natural disaster or economic crisis*". It can be understood as the ability to adaptively coping or bouncing back from adversities (Fletcher and Sarkar, 2013). Thus, we can consider resilience as a prerequisite for CE.

Literature Survey

Undoubtedly, the multifaceted nature of the Covid-19 crisis has highlighted the shortcomings of our linear economic model and has urged the need toward shaping of a "new Indian economic model: more defensive, more comprehensive and more resilient".

Series of studies reveals that the greatest resilience and ability to recover from adverse events is achievable only when physical, information, cognitive and social domains (all important to decision making for complex systems) are considered and resolved in a resilience analysis policy problem (Renn, 2016; Linkov & Trump, 2019).

According to Suarez-Eiroa et al. (2019) the main objective of CE is to adject the production-consumption system to the requirements of environmental sustainability.

Raworth (2017a) pointed that production-consumption system is the mechanism that controls materials and energy flows between the natural and the social system and enhances a fair development that preserves the environment.

Initially the concept of CE was based on three R's: Reduce, Reuse and Recycle. Progressively, it now incorporates rethinking, remanufacturing, repurposing, recovery and repairing (Reike et al., 2018).

CE can be understood as an umbrella concept that addresses the way humanity produces and consume goods and services (Merli et al., 2018; Schoggl et al., 2020).

Problems to be Investigated

In today's era of rapid urbanization, globalization, and growing population where country's economic growth and population growth are interacting adversely with renewable natural resources and environmental quality leading to unexpected surprises and crisis, it is very essential to make positive developments that could evolve over the foreseeable future to notably improve human and economic condition. These developments include regenerating and optimizing the renewable energy and materials through embedding a thoughtful collaboration and resilience into the national recovery plan. Hence, the need for circularity becomes more obvious as compared to the traditional linear economic model. The term circularity comprises of four elements: renewable energy, closed cycles, social inclusiveness, and systems thinking. The transformation to new economy model will trigger key changes for businesses and government

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to work together in prioritizing and managing circularity, take the long view together, be resilient and lead the way.

Research Objectives

1. To provide an insight into resilient circular economy strategies.
2. To identify challenges and opportunities created by embracing a new circular economy model.

Research Methodology

The study is conceptual and qualitative in nature. Data is collected from both primary and secondary sources. For the purpose of the study, the primary data is collected through semi-structured virtual interviews conducted using E-mails and Facetime based on the interviewees knowledge and experience with CE implementation and resilience while the secondary data includes articles, journals, reports and websites. To this end, we interviewed 23 executives across industries in India having more than 18 years of experience (including more than 2 years' experience in CE and/or resilience) and are in managerial level in organizational hierarchy. A purposeful sampling method is used for data collection. All interviews are subsequently recorder and analysed.

Analysis of the Study

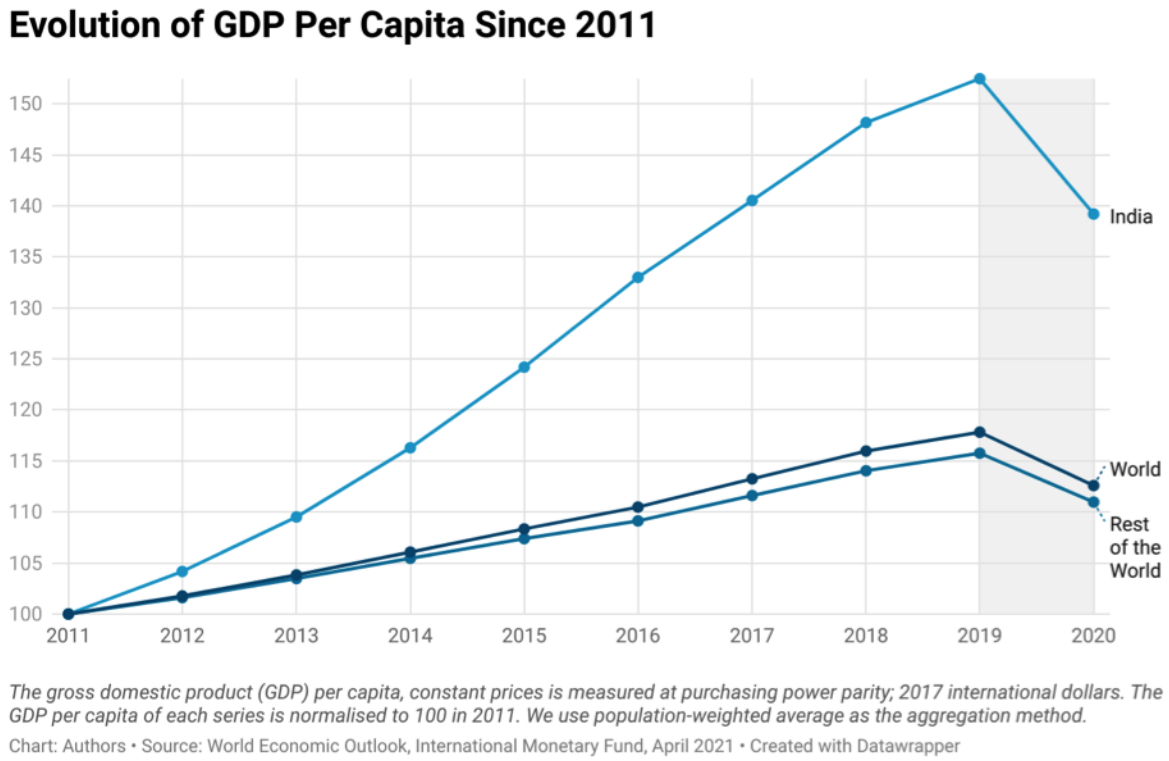

FIGURE 1
ECONOMIC CONTRACTION IN INDIA AND THE WORLD DURING COVID-19

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The above figure shows that 2020-21 is the worst year in terms of economic contraction in the country's history, worse than the rest of the world. This contraction might be responsible for reversing the trends of global inequality. Hence there's a need to bounce back and rethink or reinvent long term strategies.

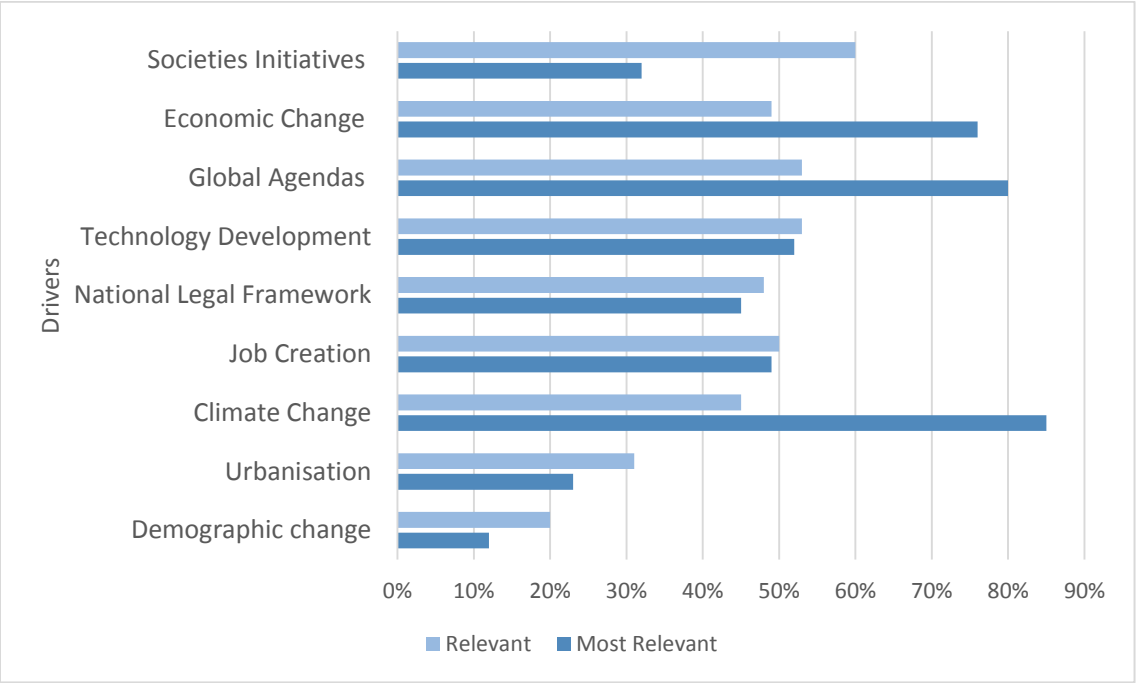

FIGURE 2
DRIVERS OF CIRCULAR ECONOMY AND RESILIENCE

Figure 2 shows that the major drivers for transitioning to a new circular and resilient model are climate change (87%), global agendas (80%) and economic changes (77%). Additionally CE transition id driven by technological developments (52%), job creation (49%), national legal framework (45%) and social initiatives (32%). However, the data also highlights "demographic changes" as the least relevant drivers in CE and resilience.
To achieve our first research objective, we have recorded and analysed below few selective responses from our participants using primary data:

Question1: What is your current understanding of the circular economy and resilience and to what extent are you or you wish to engage in it?

Responses: *"CE is an instrument to decouple economic growth from resources use and environmental impact". Being a HR head in one of the manufacturing unit, we are developing strategies that are aligned with employee resilience and CE.*
"Covid-19 pandemic has affected the world and open up the way for a resilient recovery. In order to achieve this recovery we are discovering circular investment opportunities in our construction industry right from planning, designing through construction, usage and eventually deconstruction and recycling, which would bring huge ecological improvements". Progress has

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already been made and we are working hard towards accomplishing a resilient circularity in our industry.

Question 2: What in your opinion is the biggest driver for your organization to think about circularity?

Responses: *"Well….I think that climate change is the key driver to CE. By adopting circularity we aim to achieve net zero CO_2 emission and reduce global warming repercussions".*
"Being head of marketing department in one of the reputed fashion brands, I believe that consumers and internal forces such as workers are key drivers to the new system".

Question 3: Do you believe that building a resilience would propel circular economy forward?

Responses: *"Of course…yes, resilience in any form: individual or collective is essential to survive shock or emerge stronger through disruption. Building a resilient system means we need to re-explore our connections and relationship with the natural world which would not only ensure speedy recovery of our system but will also help us to stay stronger in future crisis".*
"Undoubtedly yes… building resilience in any system brings cooperation, connectivity and innovation which I think lay the foundation for a transitioning system".

Question 4: Could you please propose few strategies to integrate resilience into the so called "spaceman" or the "closed-loop" system?

Responses: *"Government must introduce some broad range policies such as enforcing recycling, taxes on waste, subsidies for the reuse activities etc. to encourage a shift to circularity".*
"With digitalization, we need to encourage innovation by investing in new and competitive technologies to reduce waste, energy consumption and expand lifecycles of the products. Also businesses need to share the platforms with all the stakeholders to strengthen resilience into the system".

Table 1
CHALLENGES AND OPPORTUNITIES CREATED BY CIRCULAR ECONOMY

Challenges	Opportunities
There is a need to change mind-set and behavior of public and all the stakeholders	This will help to align with national sustainability agenda enabling India to keep up with general sustainability trend
Existing technologies are not adapted to CE	Promote skill transferability, mobility, automation, and digitalization
Lack of transparency, forecast ability and difficult decision making	Create resilient and decentralized governance system which promotes active participations leading to good decision making
Resistance to changes towards CE and conflict with the existing culture	Promote active participation and educate that the change will help them to grow stronger as an individual, society and economy
The upfront costs of shifting to a CE requires initial investment	Eventually that will pay off in the form of value created by recycled products and services
There is a need to understand the system and strategies at their core	CE is a chance to catch up with other countries and make measurable progress in terms of sustainability commitments

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All the stakeholders need to recognize circularity as an opportunity	This will help to recover resource value, access new markets and offset business, operational and legal risk associated with the take-make-dispose model

The above table shows that major challenges faced in the transitioning phase and also identifies the opportunities it provides to emerge stronger through disruption.

Findings and Discussions

The study reveals that world's growing population, increasing demand for resources, climate change, global agendas, economic changes and increasing threats of new diseases like Covid-19 pandemic are some of the serious concerns which are putting enormous pressure on the available resources, humans and environment giving a very unbalanced view of the future. This requires the policymakers to just consider the resilience and identify the factors which make old linear model so vulnerable and accordingly set the system level changes at its core. These changes involves integrating more resilience and discovering circular investment opportunities across various sectors keeping in mind the use and circulation of assets, material and nutrients while offering environmental, economic and societal benefits that can help address both short and long term goals of public, private sectors and humanity. The findings also highlights that individual resilience is no solution for recovery or a transition to a new system rather it needs a collective resilience to bring a change to our culture and mitigate the impact of unexpected crisis. Furthermore, the participants add that promoting stronger decentralized governance structures, political momentum, sociological foundation i.e. social inclusiveness, resource efficiency, encouraging innovation, use of digital and new age technologies (e.g., AI, Robotics, Cloud, 5G) and skills transferability will help to integrate resilience into the system and hence building a stronger ecosystem.

CONCLUSION

Firstly, the transition to new closed loop system cannot be accomplished by single player in the system- government, business or general public. It requires a transparent system of data sharing within and across industries and a thoughtful collaboration. In the second instance, we need to go local i.e., reduce our dependency on scarce and global resources and go digital which means to include AI, robotics and automated recycling systems to ensure tracking, tracing, accuracy of real-time data and improve the economics of the industries thereby increasing the resilience of the system. Last but not the least such transformed systems will require introduction of broad range policies such as enforcing recycling, taxes on waste, subsidies for the reuse activities etc. by the government to encourage and accept shift.

Finally, replacing the old linear model is not as easy as it looks like, it requires political will, innovation, diversity, connectivity, participation, systems thinking and investment to accelerate progress and build a stronger ecosystem that will be resilient for decades to come.

Research Gap and Future Scope

As the research study mainly depends on the secondary data, the findings of the study cannot be generalized. Also, the primary data has been transcribed and analyzed with a specific purpose in mind so it may have limited applications to specific market research. Lastly, due to time constraint, the study is limited to a small sample.

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Future studies require to quantitatively determining the relationship between different types of resilience and circular economy models. Identifying dynamic capabilities of government, individual and businesses in promoting CE innovations and implementation remains a common research agenda.

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