



# Value Creation through Circular Economy in Bishnupur's Weaving Industry

ARNAB MAHAPATRA

RESEARCH SCHOLAR, DEPARTMENT OF ECONOMICS  
THE UNIVERSITY OF BURDWAN, WEST BENGAL

## ABSTARCT

**Objective:** There are two specific objectives that the paper is likely to focus on: How valueless wastes are turned into 'valuable wealth' or how wastes are re-cycled to create value out of it and how markets are generated for such products.

**Methodology:** The researchers focus on field survey to garner information. Also simple regression analysis is used to explain the data.

**Results:** When wastes are recycled to be re-used through the creation of values out of it, markets are generated. Through such a value-creation and the subsequent market generation, employment opportunities are created.

**Social implications:** The application of the circular economic framework to recycle and the subsequent re-use of wastes into new products lead to positive externalities on environment as wastes are substantially reduced. The value creation out of wastes through market generation results in employment generation at each stage of value creation.

**Policy perspective:** The restorative feature of the circular economic framework underlines the value creation out of wastes to pave the way for effective waste management and the subsequent employment

generation. Such an unconventional system must be promoted to safeguard environment from pollution and generate jobs so that the spectre of unemployment can be mitigated. Policy must be formulated to accommodate such an ecologically and economically sustainable production and consumption.

**Conclusion:** The paper seeks to relook at and re-examine critically how the application of the circular economic framework in the context of weaving industry in Bishnupur, Bankura, West Bengal, and leads to value creation out of wastes to generate employment and reduce negative externalities to protect environment.

**Key-words:** Bishnupur, Circular economic framework, Market, Negative externalities, Restorative, Sustainable development, Value-creation, Weaving.

## 1. Introduction:

Accumulation of wastes out of different activities in economies unleashes negative externalities on economies. Such negative externalities not only pose serious threats to environment, but also appears to be a threat to human existence. In order to mitigate such threats of untreated and unprocessed wastes, there must be a system, which facilitates the use of wastes in the mainstream economic framework. Precisely, there must be a system in place which helps create values out of wastes. The re-use of wastes through the process of recycling in terms of new products through value creation can be possible in terms of circular economic construct. In fact, the circular economic framework facilitates such re-cycling of wastes to create values out of these (Gianneti & Madia, 2013). The growing application of it is a testimony to using wasters into productive purposes in a restorative manner (Dutta & Mukherjee, 2014).

The question in relation to the circular economic framework is on how the framework is helpful in value creation out of wastes. Relevant questions regarding the generation of markets and the subsequent creation of employment are also raised. The circular economic framework is based on minimizing wastes through recycling and reusing of products to create both environment and economic benefits (Ilic & Nikolic, 2016). In other words, the important aspect of the circular economic framework is to minimize wastes to create values out of such wastes to maximize economic and ecological gains (Ellen MacArthur Foundation, 2012).

The circular economic framework clearly indicates an economic system, which has objectives of reduction in wastes and consumption of resources (Prieto-Sandoval et al., 2018). In fact, the circular economy represents a restorative economic framework, which addresses decoupling environment from development, resource-efficiency, production efficiency, and a comparatively slower material flows than the conventional production system, which lead to a lower resource extraction with a reduction in wasteful economic activities (Lacy & Rutqist, 2016). The circular economic framework is completely opposite of the ‘take-make-waste-dispose’ type of conventional (or linear) production and consumption systems. The wastes in the circular economic framework are recycled and made suitable for a re-use in multiple times, leading to an extension of the product lifecycle. In other words, the span of time of the usage of product(s) gets extended, causing less waste. Thus, the circular economic framework is a system, where the restoration, retention and redistribution of materials, components and products takes place, which eventually bring these back into the formal economic system in an optimized manner as long as these are environmentally, technically, socially and economically viable and suitable (Pearce & Turner, 1990). Such a restorative and sustainable system of waste management to create values makes open different dimensions of it, one of the most important ones being market generation in the process of value creation out of wastes and the subsequent generation of employment.

When such a restorative and regenerative framework is in place, attempts are constantly being made to reduce the volume of wastes by means of recycling these into new products. The value creation out of wastes is a significant landmark to achieve environmental sustainability. Besides, value creation out of wastes and the subsequent generation of markets pave the way for employment creation. Such an attempt has been made in the weaving industry of Bishnupur, Bankura, West Bengal, where the wastes generated out of weaving activities, are now being re-used in the context of circular economic framework to create values out of these. Once discarded, wastes are now being used to produce new goods, leading to value-creation and the generation of subsequent markets. Moreover, such practice of value-creation out of wastes leads to the generation of employment at each stage of value-creation.

The paper aims at analyzing how the application of the circular economic framework leads to value-creation, market generation and the subsequent employment opportunities to present both ecologically and

economically sustainable construct for sustainable development in the context of Bishnupur, Bankura, West Bengal.

## 2. Literature Reviews:

There are many literatures, which dwell on the relationship between the innovation and the market generation in a bid to create values in the context of the circular economic framework. These literatures are premised on market generation through innovation in the circular economic framework.

Hobson and Lynch (2017) focus on the importance of applying circular economic framework in different business models to bring about a change in the existing wasteful business practices. They vouch for the practices of recycling wastes into new products to be sold in markets in an attempt to create values. They constantly push for the resource-efficient production innovatively for sustainable development. They pin hopes on adopting such a practice where resource are distributed efficiently in terms of clean production and distribution.

Gigli, Landi and Germani (2018) have openly pushed for the large-scale application of innovation in promoting clean and green production. They also underline the importance of the operations of market in this direction so that sustainability and development can go hand in hand. Though, as they describe, the relationship between the circular economy and innovation with markets alongside sustainability is still elusive in some cases, it must be comprehended by the policy-makers to expand the base of the market, which promotes waste management and application of new technology sufficiently. They attempt to promote the valuation of wastes from purely environmental perspective in terms of the constant efforts to improve environment.

Benachio, Freitas and Tanvares (2019) have supported the application of the circular economic framework in line with the adequate implementation of the innovation. They argue that innovation in recycling often create new products and new opportunities for markets. Such opportunities bring the aspect of environmental sustainability into fruition, leading to constantly pursuing resource efficiency and environmental improvement.

Ferronato, Rada, Pottillo and Cioca (2019) have identified several factors relating to product and process innovations to promote the practices of sustainable development. They point out the necessity to transition from the linear economic framework to the circular economy. The innovation in the context of circular economic framework provides a big fillip to the production and consumption processes. It leads to market generation, which makes grounds for resource-efficiency and the resultant sustainable development.

Waheed (2017) has categorically points out the cases of market expansion, product diversification and the resultant employment generation in the case of circular economic framework, when it is applied to its full potential. The application of innovation in the context of the circular economic framework not only strengthens the foundation of it, but also encourages the processes of recycling and reusing of wastes into new products. Thus, the innovation and market expansion are associated with each other, leading to the proper and adequate implementation of the circular economic framework. It results in the resource efficiency and the resultant sustainable development.

Figgie, Thorpe and Good (2017) have described the importance of markets in the context of the circular economy to promote the economically and ecologically efficient behaviour. The more efficient use of natural resources, as they argue, can be possible, when there is the circular economic framework and innovation is adequately applied. The authors point out that the innovation in the products and the processes is at the core of opening up the opportunities for markets for waste products.

Robertson (1967) outlines how a large-scale diffusion of innovation leads to a closer acceptance of the circular economic framework. The innovation, according to him, is a major driving force to bring changes in the existing processes of production and consumption. He ensures the fact that the diffusion of innovation not only creates new products, but also expedites the recycling processes in order to economize wastes. Mainstreaming of wastes in the form of waste products is the hallmark of the circular economic system .It creates value and invariably, wastes are turned into wealth through market creation.

### 3. Methodology:

The researcher chooses field survey to elicit information about waste generation out of weaving activities and the recycling of wastes to produce goods in an attempt to value-creation and market generation together with employment creation. Linear regression method is applied to analyze the data.

The researcher has chosen 30 firms engaged in weaving activities to elicit information about the amount of generation, amount of recycled wastes, the amount of total collected wastes, amount of wastes sold, number of products produced after wastes are recycled etc. Data are analyzed with the help of linear regression using STATA software.

### 4. Discussion:

The researcher has chosen 30 firms engaged in weaving activities in Bishnupur, Bankura, West Bengal, which located in the wards of 17 & 12 under Bishnupur Municipality.

**4.1 Location:** The temple town of Bishnupur, a city of the district of Bankura in the state of West Bengal. It is 199 kilometres away from Kolkata, the capital of West Bengal. It is famous for Baluchari Sari and dotted with many places of historical interest. It lies between  $23^{\circ} 4' 48''$  N longitude and  $87^{\circ} 19' 12''$  E latitude. According to the Census 2011, it has a total population of 156822.

#### 4.2. Occupational distribution of population:

Types of occupations	Percentage share of the total population
1. Weavers (Tanti)	57%
2. Fishermen (Jele)	20%
3. Milkman (Goyala)	10%
4. Blacksmith (Kamar)	5%
5. Betel leaf growers (Barujibi)	5%
6. Others	3%

Source: Census 2011

According to 2011 Census, the total population of Bishnupur stands to be 156822. Out of the total population of 156822, 57% is engaged in weaving activities, 20% is engaged in fishing activities, while a 10% of it is engaged in milkman. 5% works as blacksmiths and another 5% is engaged in betel leaves cultivation. A meagre 3% is associated with other occupations like worshipping door-to-door (Brahmins), oil production (Teli) etc.

The distribution of population is testimony to the fact that a majority of people is engaged in weaving activities. What catches the eyes of the researcher is the concentration of weaver families in wards 12 and 17 under Bishnupur Municipality. As weavers constitute the majority of the population, wastes out of weaving activities and recycling of wastes become the focal point of discussion regarding the value creation out of wastes, which were earlier dumped without being reused.

#### 4.3. Circular economy and Value-creation in Bishnupur:

The creation of value out of wastes is a significant attempt to reduce wastes to mitigate negative externalities on environment. Furthermore, such an attempt to introduce circular economic framework in re-using wastes to produce new goods paves the way for new employment opportunities at each stage.

The wastes out of weaving activities in its entirety were earlier left behind unprocessed without being recycled and reused. But the application of the circular economic framework has changed the scenario. The re-cycling of wastes to economize underpins value creation out of it. In fact, wastes are now collected by local people at a specific price not only gives firms engaged in weaving, opportunity to earn money, but also people engaged in collection find employment.

After collection of the wastes, these are re-cycled for re-using these into production of various products. People, who are engaged in the process of re-cycling, find significant opportunities of employment, whereas, those who are engaged in transportation find employment. Now, the different items produced out of wastes after being re-cycled are marketed. Those, who are engaged in marketing, promoting and various other business activities of the products, get employed.

Initially, wastes were discarded as valueless. But when circular economic construct is applied, wastes are reused. As a result, values are created at multiples stages and so as the employment of people for engagements in different stages of production, transportation and marketing takes place. Thus, value-creation as well as employment is two important consequences of the application of the circular economic framework. It underpins the fact that the circular economic framework leads to 'waste-to-wealth' approach to development.

**Proposition I:** Total amount of wastes collected (per month) is strongly related to total amount of wastes sold for recycling. It means as collection of wastes increases, the total amount of wastes sold for recycling also increases, which leads to an enhanced value creation.

**Table 1. Regression Results**

Variables	Coefficient	Standard error	t	p > t
Wastes sold per month & Total amount of wastes collected	.4882	.1256	3.89	.001
Constants	182.3141	157.432	1.16	.257

**Model fitting:**

Number of observations: 30

$F(1, 28) = 15.11$

Prob > F = 0.0006

R-squared = 0.3505

Adj. R-squared = 0.3273

Root MSE = 277.86

It is evident from the above statistical analysis that as total amount of wastes collected increases; the volume of the sale of wastes is on the rise.

**Proposition II:** The amount of wastes recycled and number of items produced are strongly correlated. As the amount of recycled wastes increases, the number of items also increases. It means as wastes are being recycled in the context of the circular economic construct, the production of new products or items out of wastes stands to increase on a large scale. Thus, wastes are economized into new products, which mitigate the negative externalities of untreated wastes dumped earlier.

**Table 2: Regression results**

Variables	Coefficient	Standard error	t	p > t
No. of items produced & Amount of wastes recycled	.0.778463	0.0384	2.03	0.052
Constants	42.06191	17.6985	2.38	0.025

**Model fitting:**

Number of observations: 30

F (1, 27) = 4.11

Prob > F = 0.0523

R-squared = 0.1279

Adj. R-squared = 0.0967

Root MSE = 50.241

The t-value of number of items produced and the amount of wastes recycled is 2.03, which is significant at 2 % level. Such strong significance of t value between the above variable testifies the fact that as the recycling of wastes is intensified or used increasingly in the circular economic framework, the products out of wastes through re-cycling also increases. It makes sure that the increasing use of recycling paves the way for marketing of such increasing number of items.

**Proposition III:** As the amount of wastes recycled increases after the application of the circular economic framework, the labour hours (per day) engaged in recycling also increases. It indicates the fact that the scope for employment also increases.

**Table 3: Regression Results**

Variables	Coefficient	Standard error	t	p > t
Amount of wastes recycled & Labour hours per day engaged in recycling	- 0.00173	.0011339	- 1.53	0.138
Constants	5078235	.52238	11.07	0.000

**Model fitting:**

Number of observations: 30

F (1, 28) = 2.33

Prob > F = 0.1379

R-squared = 0.0769

Adj. R-squared = 0.0439

Root MSE = 1.4829

It is evident from the above statistical table that the amount of wastes recycled has a relation with the labour hours per day engaged in recycling process. So, the recycling of wastes not only creates values out of wastes but also it has potential to create more job opportunities.

The increasing production of products through increasing recycling of wastes gives way to many to get employed in the process of recycling and production of products out of it subsequently. Thus, recycling of wastes leads to value creation of wastes and as recycling increases, production of products increases and so is value creation. Consequently, employment is increased as production increases.

## 5. CONCLUSION:

The waste products bring about a change in the preference of people in Bishnupur and the people of adjoining places. The application of new production techniques based on recycling wastes into new products (as sold in markets) has changed the consumption pattern of people. People, while showing increasing interests in waste products (recycled products) demonstrate the tendency of increasing the use of such products in different arenas instead of conventional products, underpins their intense preference for recycled products. The increased preference opens up increased opportunities for further production, which underlines new investment opportunities. Such products are being increasingly used as part of environmental consciousness. New products and its increasing use intensify the application of the circular economic framework, which paves the way for new markets or expansion of markets. Such opportunities reveal the fact that labour employment has also increased. As people are more inclined to use these goods, their enhance preference for it opens up new markets or expands the existing markets. Besides, market expansion, the employment of labour is significantly increased. Thus, the application of the circular economic framework not only expands market through the creation of values or creates new ones, but also increases the opportunities for the employment of labour.

The circular economic framework and its increasing application for producing new products using new techniques, which are eco-friendly and resource-efficient, have unravelled the following aspects:

- a. The increased application of innovation in the production of eco-friendly products in the circular economic framework in terms of the product innovation or the process innovation or the both leads to expansion of markets or generation of new markets. In Bishnupur, the wastes out of weaving are used to produce various decorative items and essentials, which are sold in the markets, even in different fairs. A new market for these products is created and the existing ones are expanded.
- b. Recycling wastes into new products sold in the local markets or other nearby markets intensifies the use of new technology to do so. The execution of it increases the labour employment.
- c. Different nodes of employment are generated right from collecting wastes to transporting these wastes for being recycled to produce new products to marketing these ones. Thus, a chain of

employments from source point to point of recycling these to making new products out of these and finally to the marketing of products, are created.

- d. New markets for such products in Bishnupur have diversified the occupational opportunities. Earlier, traditional occupational patterns were followed largely. But with opening up of new markets or expansion of markets with the waste products, many have come forward to join selling of such products. It becomes another powerful and strong source of employment apart from their traditional and hereditary employment dimensions.

There should be many avenues for the following:

- A. The innovation-based new markets or expanded markets must be promoted on a large-scale so that the base of the circular economic framework can be expanded.
- B. People must be made aware of the recycled products and their usages. The more they become environmentally conscious, the more they can use such products. The recycling and reusing practices must be enhanced for the sustainability of resource use and the value creation out of wastes. Different steps can be made in this direction.
- C. Government must incentivize the new waste markets for their overall promotion. Waste markets are a testimony to the creation of values out of wastes. It must be promoted.
- D. The diversification of employment based on waste markets should be promoted. Such diversification mitigates the risks, faced with by people of villages on seasonal basis. It not only mitigates risks of people with life and livelihood, but also maintains sustainability of environment.
- E. The enhancement of employment opportunities must be promoted on the basis of waste markets. It must promote green production and consumption. The green production and consumption must be in sync with the efficient resource utilization and protection of environment from degradation as value is created through waste products, instead of being dumped in the environment unprocessed and untreated.

## 6. References:

- Banburry, C.M. & Mitchell, W. (1995). The effect of introducing important incremental innovations on market share and business survival. *Business Horizons*, 16(1), 161-182.
- Banerjee, A. & Chakrabarti, G. (2022). The Sociotechnical system of Silk Weaving in Bishnupur Region in West Bengal. *Journal of South Asian Development*, 17(1), 108-133.
- Chen, Y. (2006). Marketing Innovation. *Journal of Economics and Management*, 15(1), 150-170.
- Coad, A. & Rao, R. (2006). Innovation and market value: a quantile regression analysis. *Economic Bulletin*, 23(3), 122-140.
- Cullen, U.A. & Angelis, R.D.(2021). Circular entrepreneurship: A business model perspective. *Resources, Conservation and Recycling*, 168(3). 290-325.
- Foxall, G.R. (2015). *Corporate Innovation*. Routledge.
- Gupta, S., Malhotra, N.K., Czinkota, M. & Foroudi, P. (2016). Market innovation: A Consequence of Competitiveness. *Journal of Business*, 69(12), 5671-5681.
- Hauser, J., Tellis, G.J. & Griffin, A. (2006). Research on Innovation: Agenda for Marketing Science. *Marketing Science*, 25(6), 120-140.
- Heerde, V.H.J. & Mela, C.F. (2004). The dynamic effect of innovation on market structure. *Journal of Marketing*, 41(2), 234-250.
- Kenneth, B.K. (2018). Understanding Innovation. *Business Horizons*, 61(3), 453-460.
- Kolpinski, C., Devrim, M.Y. & Fraccascia, L. (2022). The impact of internal company dynamics on sustainable circular business development: Insights from circular start-ups. *Business Strategy and the Environment*, 43(1), 234-290.
- Kuncoro, W. & Suriani, W.O. (2018). Achieving Sustainable Competitive Advantage through Product Innovation and Market Driving. *Asia Pacific Management Review*, 78(12), 178-190.

Low, D.R., Chapman, R.L. & Sloan, T.R. (2007). Inter-relationships between innovation and market orientation in SMEs. *Management Research News*, 63(5), 560- 590.

McAloone, T.C., Pieroni, P.P. & Pigosso, C.A. (2019). Business model innovation for circular economy and sustainability: A Review. *Journal of Cleaner Production*, 45(3), 198-216.

Polsa, P. (2018). The crossover- dialogue approach: The importance of multiple methods for international business. *Journal of Business Research*, 66(3), 288-297.

Purchase, S. & Volery, T. (2020). Marketing Innovation: A Systematic Review. *Journal of Marketing Management*, 45(2), 763-793.

Ritala, P. & Sainio, L.M. (2014). Competition for radical innovation: technology, market and business model perspectives. *Technology Analysis & Strategic Management*, 26(2), 185-210.

Robertson, T.S. (1967). The Process of Innovation and the Diffusion of Innovation. *Journal of Marketing*, 31(1), 2014-2025.

Schindehutte, M. & Morris, M.H. (2001). Pricing an entrepreneurial behaviour. *Business Horizons*, 44(4), 41-48.

Williamson, O.E. (1965). Innovation and market structure. *Journal of Political Economy*, 73(1), 161-182.

Yalcinkaya, G. & Calantone, R.J. (2007). An examination of exploitation capabilities: Implications for product innovation and market performance. *Journal of International Marketing*, 15(4), 453-460.