Public Perception of Circular Economy in Bangladesh

Md. Munjur E. Moula[1,3,4], Laboni Khatun[2*], Mesbaul Islam Anindo[3], Papia Basu[1], Ashiquzzaman Sohan[1], Abu Yousuf Md. Abdullah[1]

[1]Northern University Bangladesh, Dhaka, Bangladesh

[2]University of Dhaka, Dhaka, Bangladesh

[3]Aalto University, Finland

[4] Circular Family in Bangladesh (CFB), Bangladesh

***Corresponding Author**

DOI: https://dx.doi.org/10.47772/IJRISS.2026.100500120

Received: 29 April 2026; Accepted: 04 May 2026; Published: 25 May 2026

ABSTRACT:

Public perception is among the driving forces in the implementation of circular economy within Bangladesh, but there is yet to be any research on this topic. The study was conducted in different areas of Dhaka city in 2020 and 2023. This exploratory survey-based study took 247 respondents in the (both phases) to investigate the public perception of circular economy in terms of public awareness and knowledge of the implementation. This study is conducted in two phase, first phase was conducted in (February-March), 2020 and second phase in (October-December) 2023. The second survey took three years' interval for the to know the change of awareness level after corona pandemic. Both study utilized same set of multiple- choice questionnaire with same number of people and gender at the same areas of the city. The respondents were not the same person participated at the first survey. The questions were divided at the three segments: background information, environmental awareness in terms of circular economy implementation, and willingness to share information about the importance of circular economy. Quantitative and content analysis is then applied to evaluate the robustness of survey results. Results indicate that 98% of the respondents had no idea of the concept of circular economy in 2020 but number increased from 2% to 20% in between three years. However, 35% participant believe in caring for green environment, 83.7% (2020) wanted to reuse second-hand product at their home and in 2023 number increases up to 89%. Moreover, 80% respondents from both study years want to share information about the importance of circular economy with their family members, neighbors' and alike, which could potentially support the implementation of circular economy in Bangladesh. Together, this study provides an initial step towards a better understanding about why public perception is required to support the process of circular economy implementation in Bangladesh.

Keywords: Circular Economy; Public Perception; Environmental Awareness

INTRODUCTION

Since 1970s onward, the discussion of circular economy has attracted enormous attention amongst academics, policy makers, industry (see, CEAP, 2020), academics (see, Pomponi and Moncaster, 2016) (Kalmykova et al., 2018) (Geng et al., 2019) and consulting practitioners (see, EMAF, 2019).

The concept of circular economy can be defined as 'an alternative to the take-make- dispose-system that exists today' (Melanie and Stefanie 2019). It seeks for economic and social sustainability under the structure of eco-efficiency (Kjaer et al., 2019) towards the long-term and resilient methodological transition. In turn this would create economic opportunities in line with social and environmental payback (Marzena et al., 2018) (EMAF,

2017). Hence, the implementation of circular economy benefits sustainable development, 'especially in the reduction of environmental impact (Moula et al., 2017).

Today, the term circular economy is well recognized across Europe and around the world as crucial for promoting sustainability in the twenty-first century (Lin, 2020). However, like billions of people in developing countries, the population of Bangladesh is yet to become acquainted with the concept of circular economy (Moula, 2020). While the concept was first introduced in Bangladesh by the organization 'Circular Family in Bangladesh' (CFB) in 2019, it is to be formally recognized by the government of Bangladesh as a new development strategy aimed at environmental protection and sustainable development. This requires 'great effort as well as the active participation of people from all walks of life' (Brian, 2020).

Public perception is one of the major driving forces in the transition to the circular economy model. All actors' perception in terms of their awareness, knowledge, attitudes and consumption patterns can play a central role for successful circular economy implementation (Bing et al., 2010). However, no studies have been conducted to investigate public perception of circular economy in the context of Bangladesh. Thus, the need of assessing of public perception of circular economy is fundamental for understanding people's awareness and knowledge toward circular economy and their participation in the implementation process.

Therefore, the aim of this study is to analyze public awareness of circular economy in Bangladesh society. Study place specific focus on participant's awareness and opinion about importance of circular economy implementation, willingness to share circular economy related information, and acceptance of circular economy.

This study utilizes novel survey-based data to analyze public attitudes towards the acceptance of circular economy in Bangladesh. More specifically, it provides preliminary insights into the awareness and knowledge of Bangladeshi people in implementing circular economy, which can assist decision-makers, academics, environmentalists and industry in planning for the overall development of circular economy. The paper consists of five sections. The next section describes theoretical framework of the topic. Study methodology is explained in Section 3. General findings of the study are presented in Section 4. The final section contains the main conclusions and potential for further study.

THEORETICAL FRAMEWORK

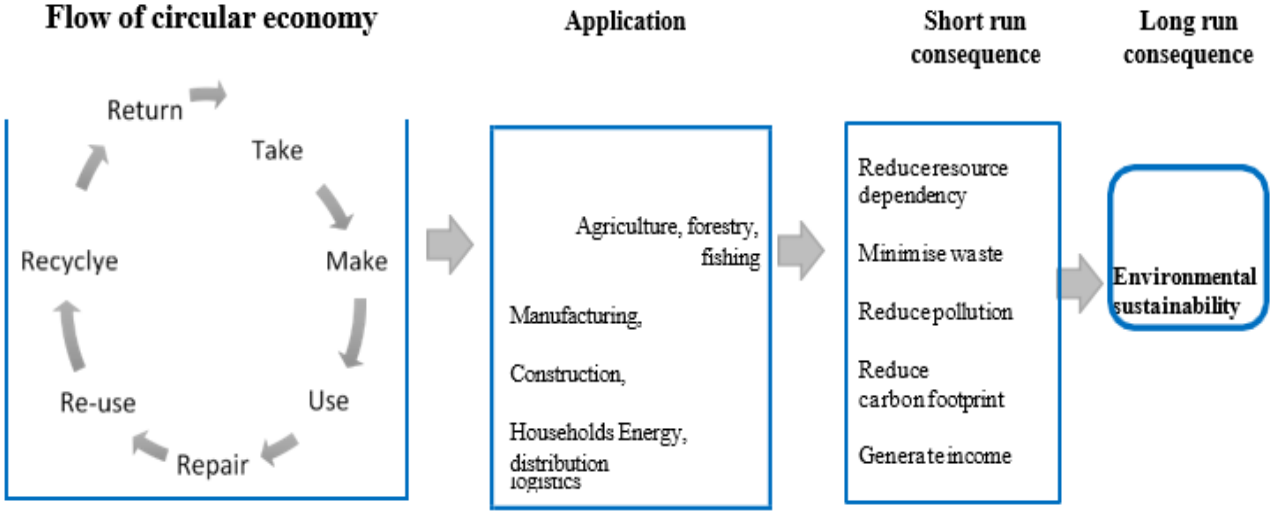
While circular economy is a rather new concept, the approach per se was adopted long before in times when people had to live with the scarcity of food, clothes and other necessities. The roots of circular economy probably date back T. Malthus's work 'An Essay on the Principle of Population' from the 18th century. Malthus brought forward that in the future, our globe could not feed the ever-expanding population – an argument that was quite revolutionary at that time, but unfortunately a reality today (Broten, 2017). Today, the depletion of natural resources drives our society towards circular economy. Wasteful use of resources has resulted in pollution, which in turn has caused serious health problems and loss of biodiversity. It is therefore widely acknowledged that Study need to move from the linear 'take-make-dispose' economy towards an economy that aims at maintaining the value of products, materials and resources for as long as possible and minimizing waste generation (see, Melanie and Stefanie, 2019).

The concept of circular economy aims to reduce close the resource loop, enabling resources to be used as many times as possible and allowing sustainable and carbon-free economies to thrive globally (Eskelinen, et al., 2020), as a move away from the move from linear 'take-make-dispose' economy. According to the Ellen McArthur Foundation (2019), arguable the most prominent international influencer in the adoption of circular economy, outlines the key principles of circular economy in terms of, ceasing 'waste and pollution', keeping ' products and materials' in use, and regeneration ' natural systems'. However, in reality circular economy is a much broader concept that is centered around a 'circular society that is committed to solving significant societal challenges in accordance to the principles of circular economy (Moula, et al., 2017).

In product designing, distribution logistics, Servicing, energy, construction, manufacturing/production, and consumption and end-of-life operation, the circular economy principle can be applied. This entails the use of

more durable materials in product design. It will reduce our carbon footprint and help us attain carbon-neutral and move forward to the carbon negative emission transition era. A life cycle analysis on carbon emissions and reduction due to the direct and indirect impact of realizing circular economy in a coal-basis power plant in China represent that compared to 2000, the carbon footprint decreased about 20.81% in 2016 (Wang et al., 2019). Further, zero waste aim of circular economy will help to minimize other Green House Gases (e.g. methane) and reduce oil, energy, and plastic-related pollutions. Thus, reducing utilization and dependency on natural resources and minimizing waste will provide, in the end, environmental sustainability to the world (see, Figure 1).

Figure 1. Flow of circular economy, application and consequences.



Furthermore, to repair, reuse, and repurpose products being manufactured using renewable energy sources, material-efficient methods and technologies, and wastes as raw materials consumption then must focus on renting and sharing as opposed to owning, while maintaining products at their highest possible value. Thereafter, end– of – life operation must comply with the 3Rs principle: reuse, refurbish, and recycle (see, Kjaer et al., 2019) (EMAF, 2017).

Upadhayay and Omaima (2019) conducted a comparative study between Nepal and USA to study public understanding and awareness circular economy in terms of economic benefit, environmental impact and resource scarcity, and found that the environmental aspect is much more developed than the remaining two (Liakos et al., 2019).

On the other hand, a UK study on *Perceptions of Firms Participating in a Circular Economy* illustrated that the government plays an important role in introducing and enabling circular economy by influencing awareness, knowledge and attitudes (Cristoni and Marcello, 2018).

Likewise, many studies show that public awareness, knowledge, attitude and individual traits such as gender, age, and profession are also significant predictors of perceptions, particularly in the process of circular economy implementation (see, Kirchherr and Hekkert, 2017). Accordingly, all actor's perception in terms of their awareness, knowledge, attitudes, cultural food habits and active participation, plays a central role for successful circular economy implementation (Bing et al., 2010) (Heather et al., 2021).

Defining circular economy for Bangladesh

In Bangladesh, the structure of production is still linear after its beginning from industrial revolution. It is estimated that the natural resource consumption will drastically increase in Bangladesh under this economic model within next two decades because of ever- increasing population and mismanagement in production system and consumption (Pilat and Selim, 2018).

Traditionally, circular economic model mostly follows 3R approach where 1st (R) correspond to (Reduce), under which the current resource using is played down. 2nd (R) symbolize (Reuse), that means using the same again product after repairing to ensure the maximum use of it and last (R) is for Recycling the rest of throw-out material with high standard (Het, 2013). These 3R strategies of circular economy approach is using for achieving stock optimization and waste prevention through the main environmental strategies (Stahel, 2013).

According to Kalymykova et al. (2018), the approach of circular economy is the eco- efficiency that appears in a different way depending on the context. 'Some of the approaches stress eco-efficiency as the purpose of circular economy' (Stahel, 2013). These approaches aim to generate cyclical, cradle-to-cradle 'metabolisms' that enable materials to maintain their status as resources" (Kalymykova, 2018). Likewise Korhonen et al. (2018) study shows that the circular economy processes using cyclical materials flows, renewable energy sources and cascading-type energy flows as a more precise model circular economy.

Present situation and future trend of circular economy in Bangladesh

Bangladesh still following the linear economy and focusing primarily on capitalism. Circularity is being very few practices in Bangladesh agriculture, manufacture, construction and logistic sectors. Plenty of waste remains in every sector in Bangladesh, but there are very few proper waste management and reuse waste methods. Bangladesh's textile manufacturing sector, the world 2nd leading exporter in the world, has very few circularity practices. In addition, the Leather-manufacturing sector is not practicing sustainable manufacturing and circularity. As a consequence, massive environmental effect occurring in the leather manufacturing sector (Bhowmik, 2013). Circular economy knowledge is vital for sustainable practice in the leather sector (Moktadir et al., 2018).

Two giant exporters in Bangladesh are trying to focus on sustainable development because of their negative environmental reputation. Manufacturing owners in Bangladesh have become interested in enhancing their brand value in the world market. There is a huge potential in Bangladesh manufacturing sectors to follow circularity in their process. The circular process can create a new business opportunity in the Bangladesh manufacturing sector due to a lot of unused waste.

STUDY METHODOLOGY

The study has been conducted in two phases. First Phase was conducted in (February- March), 2020 before Corona Pandemic and second phase survey is conducted on (October to December), 2023.

The main purpose of two-phase study is to measure public perception in terms of public awareness and knowledge regarding circular economy implementation in Bangladesh before and after the corona pandemic. Study is conducted considering peoples of different profession and age and different locations to make the result of this study paper more valuable, accurate and more substantial based on their opinions, the details of which will be clearly stated in this methodology.

Undoubtedly, circular economy is a very new term in Bangladesh. Consider this; at the first stage study decided for a group meeting for the first phase survey at early February 2020. In this group meeting, study decided to make a questioner for the filed interview. Because, it was previously unknown that before the survey- interview how all participants would express their opinion.

Therefore, study had to create an understandable questionnaire so that each question been easily understandable by the participant and they can express their opinion easily.

Before finalization of the questionnaire a pretest of the questionnaire has been conducted before the final field survey with a group of participant's resemblance to final group of study to understand the clarity of the question, how much time it takes for each question to fill up and whether any correction is needed for the question was revealed by the pre-test. The pre-test this participant was not included at the final study.

For the two phase of interview conducted in 2020 and 2023; the study used same set of questionnaires with same number of participants, at the same locality but not the same respondent who participated to phase one study.

To examine the state of public perception of circular economy in Bangladesh, study have designed eight (8) multiple-choice questionnaires, consisting of two parts, and an open- ended (interview) structure. Part A of the interview details the participants' background information including age, gender, profession and locality, and Part B consists of questions

that measure respondents' opinion on green environment, the concept of circular economy willingness to accept circular economy in terms of awareness, knowledge, food habits, culture, cost, and attendance on circular economy.

The study wanted to make known how many percent (%) of people are interested in participating in each question in our interview scheduled. The respondents selected for the investigation come from randomly selected sample, and were segment by age groups and profession. Three age groups consisted of 15-25 (50 participants), 26-46 (169 participants), and 47-66 (28 participants) for both phase of the study in 2020 and 2023 for easy compare to both sets of data. More specifically, for this study, an age-related variable explains some of the differences in knowledge and perception of circular economy (see, Briguglio, 2017). After that, study to stockholders with our question paper for interview.

Furthermore, 60% of participants were students, 35% jobholders, and 5% were retired or unemployed. Study employed the aforementioned segmentation to ensure local participation at different levels.

In addition to make comparative picture on public perception of circular economy in Bangladesh, first, study decided to conduct survey in two big cities- Dhaka and Khulna in Bangladesh. However, due to the than pandemic situation, study conducted in 11 sites within the capital city of the country, Dhaka and the second study has chosen the same areas followed by first study. The survey activities were carried out from February 2020 to March, 2020. And for second phase October 2023 to December 2023

For both phase of study, Survey respondents were from Dhanmondi (24%), Banani (13%), Gulshan (21%), Mahakhali (7%), Bangla Motor (4%), Motizhil (6%), Mirpur (7%),Nayabazar (4%), Shadorghat (6%) and Nilkhet-New Market (8%).

Thereafter, study summarized the field data through quantitative analysis, and calculating the percentage of choices for each question. Furthermore, content analysis. In this study, content analysis was used to determine the presence of certain concepts, topics and 'identifying unique themes within texts or sets of texts' (Katri, 2010) (Moula et al., 2013). Study notice that most of the participants' great enthusiasm in our work, while a number of people were not interested in our interview, which resulted in them avoiding questions or providing incomplete answer. In the following paragraphs, Study have discussed about how Study organized collected field data for this study.

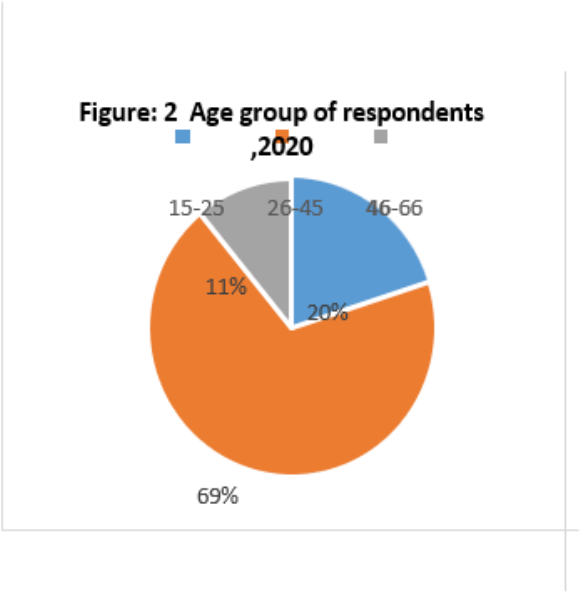
In this study, 4 questions relating to Part A of the questionnaire are represented in Fig. 2, Fig. 3, Fig. 4, and Fig. 5 respectively. 8 questions are addressed in Part B, which is illustrated Table 1 and Table 2.

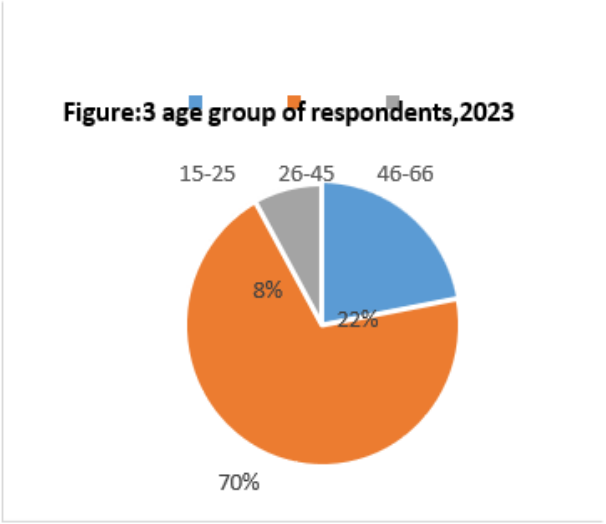
Our study has one major limitation. For example, instead of using a large number of respondents, Study have been considered a small sample of respondents for this research. This sample size cannot represent the opinion and attitudes of all the Bangladesh society about the perception of circular economy. Thus, our research cannot be generalized with any certainty for the whole of the country or even the locations it represents. However, it can be considered as a good starting point for extended future field survey.

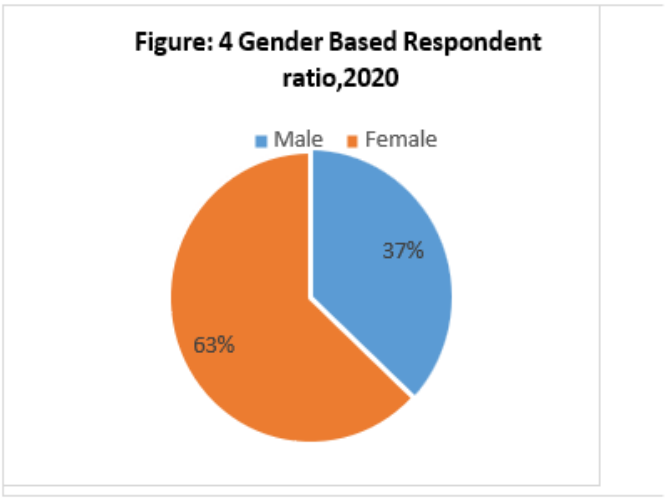
FINDINGS AND DISCUSSION

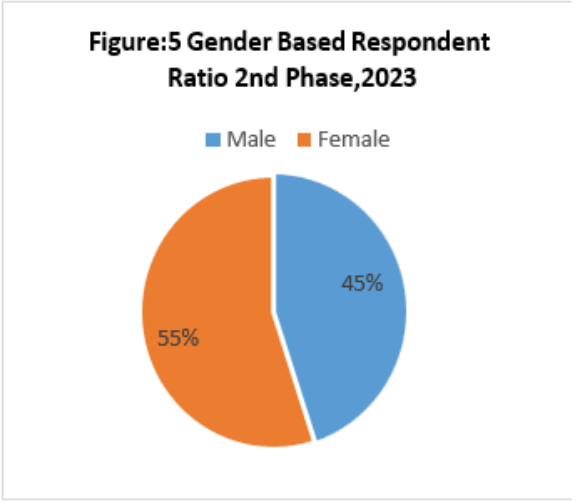
Background information of the respondents

Figure 2 and Figure 3 presents' different age groups of respondents from 2020 and 2023 study survey. Study chose the participants from different age groups from different age groups can express their different views according to their ideas that impact of age on the results. In this study found that the level of knowledge for circular economy towards better environment seems to correlate with age, with older people being not more aware than others. Figure 4(2020) shows that 91 female (37%) and 156 male (63%) and in Figure 5(2023) shows 55% female and 45% male are from different study locations in Dhaka city. In the first study found female respondents show more pro-social behavior then male although and in the second study picture is similar but found increasing number of response from male participants 45% (2023) which was 37% (2020) at the first phase study.









In the first phase of study research found, (111)45% of respondents come from the employed group,(111) 45% from student and (25)10% from retired or elderly persons and for the second phase study in 2023, researcher also interviewed same percentage of professional group so that the 2nd phase study become representable to the first study and be easily comparable therefore no separate graph is shown for this item in 2023 study. Figure 6 represents both phase of study respondent's profession. This represents respondents' profession in terms of employed, retired and students, there seems to be a positive correlation between income, knowledge and levels of environmental awareness to implement circular economy. Figure 7 shows different locations of Dhaka city

where the both phase of the study conducted in 2020 and 2023.The study locations represent the pocket places for our study population.

Figure 6. Profession of respondent

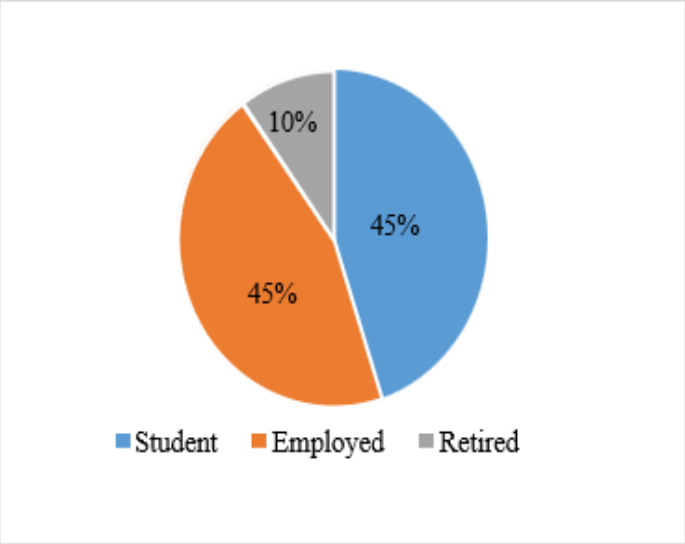
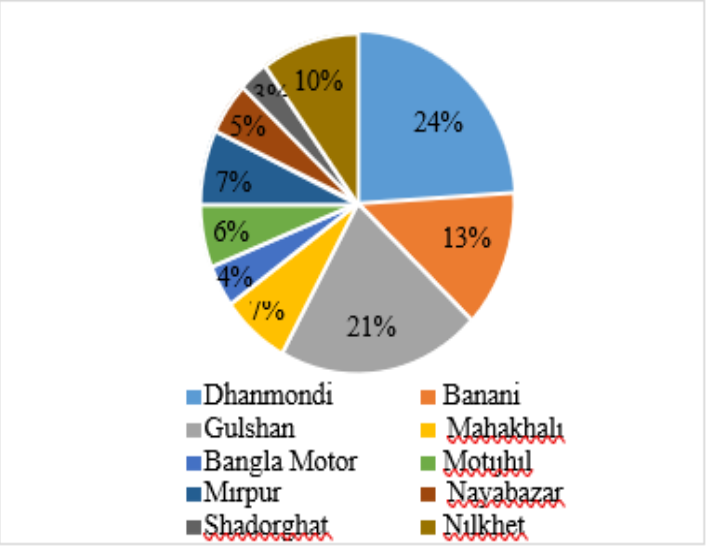


Figure 7. Location of the study



Respondents' opinion about circular economy and green environment

In Table 1, the first question deals with the very general question about the opinion regarding the concept of circular economy. While the concept may be foreign, this question was setup to deliberately to introduce the concept to naïve participants. In 2020 survey, nearly 98% as majority of respondents provided negative answers such as 'No', while 0.9% of respondents said 'Yes', to circular economy is a new business concept. Likewise. 1.1% respondents are not interested to know the concept of circular economy. And in 2023 survey, study have seen a quite increasing number 15% people who have idea about circular economy and 65% do not know about it and 10% have no interest to know about circular economy.

This suggests that although people were not familiar with the concept of circular economy before corona pandemic but after the corona pandemic many people are conscious about their consumption pattern.

The second question (see the table 1) builds upon the participant's knowledge of circular economy to as they care green environment as a global subject.

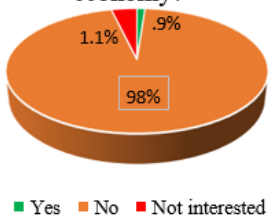
Results of 2020 survey indicate that 35% of respondent's care about green environment, with a majority of this group being young (15-25) and female. Around 49% respondents said 'No'; most commonly citing that they do not believe that environmental issues affect them personally.

Results from 2023 survey indicate that 40% of respondents care about green environment, with a majority of this group being young (15-25) both male and female. Around 45% respondents said 'No'; most commonly citing that they do not believe that environmental issues affect them personally and 15 have no interest to talk and know about it.

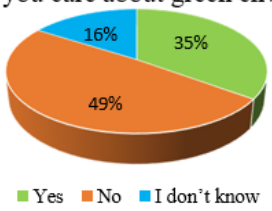
This suggests that people are generally aware and care for the environmental issue.

Table 1 : Respondents' opinion about green environment and circular economy, Survey,2020

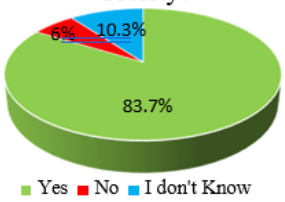
Q 1. Do you know circular economy?



Q 2.Do you care about green environment?



Q 3. Do you want to reuse second hand products to make circular society?



Q 4. Do you want to sell your household waste materials?

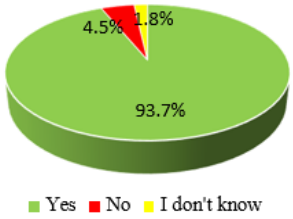
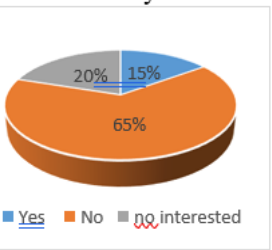
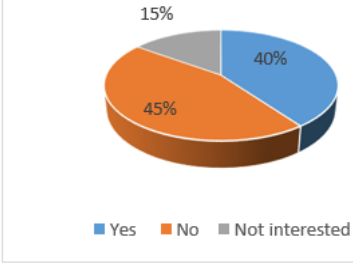


Table 1.1: Respondents' opinion about green environment and circular economy, Survey,2023

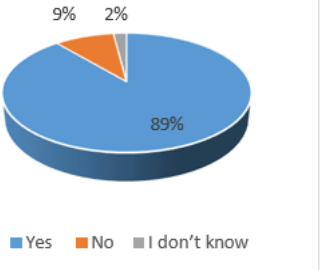
Q 1. Do you know circular economy?



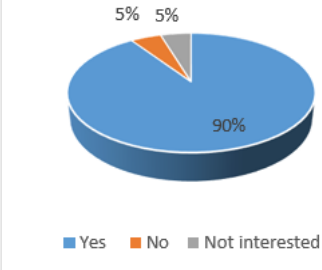
Q 2.Do you care about green environment?



Q 3. Do you want to reuse second hand products to make circular society?



Q 4. Do you want to sell your household waste materials?



In Table 1 and 1.1, the third question examines the individuals' wants to reuse second hand products, which

promote circular economy implementation. In 2020 study 83.7% and in the second study in (2023) 89% as the majority of respondents positively answered about reusing the second hand product citing that potential contribution towards reducing air, water and earth pollution as a key motivator On the other hand, 6% in 2020 and 9% in 2023 of respondents answered negatively, due to such actions might take potentially hits on their social status. As for this question, the public opinion (intrinsic motivation) is enough to get their involvement in addressing circular economy. Additionally, authors understanding of this two phase survey that more than 80% respondents may be part of the implementation processes of circular economy.

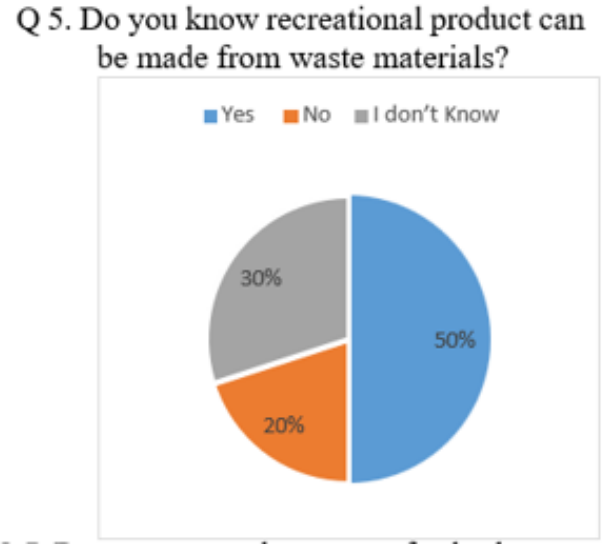
Question four (Table 1 and 1.1) then examined willingness to sell household waste materials. Both phase survey found around 93.7% (2020) and 95% (2023) of respondents want to sell their household waste materials, as they motivated to earn extra money. This percentage indicates study respondents motivation to support circular economy implementation. Approximately, 4.5% (2020) and 5% (2023) do not want to sell their household waste materials, as they pointed to the socio-cultural norm of household waste materials selling as being an activity performed by those whose suffer from poverty (see, Kumar 2021). However, it is important to mention here that respondents who provided negative and undetermined 1.8% (2020) and 5% (2023) as answer, are open to selling if the government introduced a formal waste materials selling system.

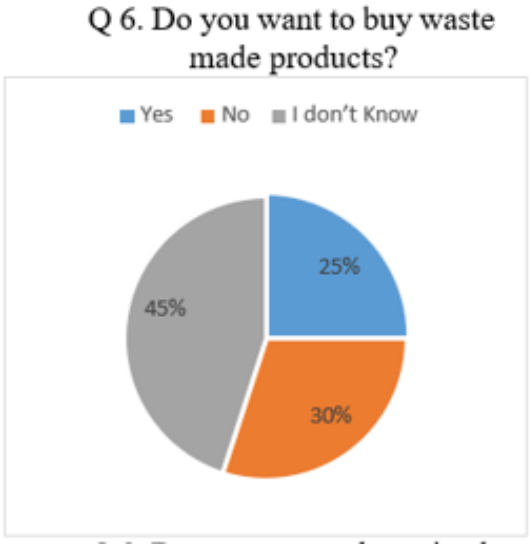
The authors, in fact, observe that these percentages of respondent want to enjoy a new business model. The authors, in fact, suggest that in developing new business model, the manufacturer keeps the ownership and rents/leases/repairs the products. Several trends promote this development, e.g., advanced information technology, which enables consumers to easily adopt different services; tapered ownership basis, e.g., in the case of real estates; consumers' purchasing products, which aggravates ownership; and service platforms. From the socio- economic point of view, the attainment of circular economy assumes decoupling of economic growth from the consumption of natural resources and wellbeing. The government must work towards the possibilities to suggest such business model. Hence Study would argue that if government can address this business model then it is likely that the perception ratio of circular economy will increase among citizens.

Respondents' willingness to implement the concept of circular economy

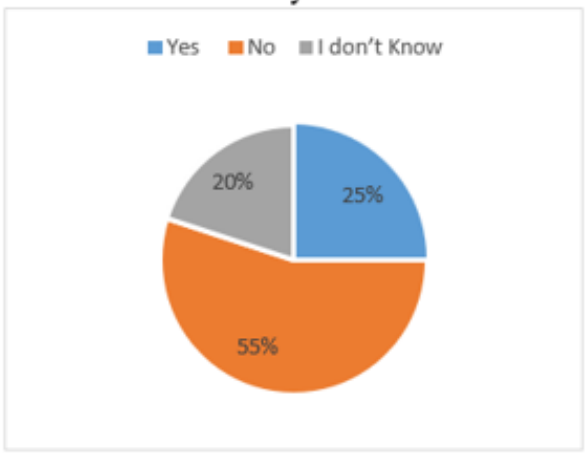
In Table (2 and 2.1) , the fifth question tests the respondents' knowledge about how different types of recreational products can be made from waste materials 36%(2020) and from 50% (2023) of respondents are well informed about this process, citing China's adoption of such processes 49% of respondents negatively. However, they acknowledged the usefulness of utilizing waste materials to make recreational produces due to cost savings, once introduce to the concept. Likewise, around 19 %(2020) and 30(2023) of total respondents want to know more about waste materials based recreational products.

In these answers, Study clearly see respondents' noticeable opinions about their indirect inner motivation to come into the green environment means of circular economy.

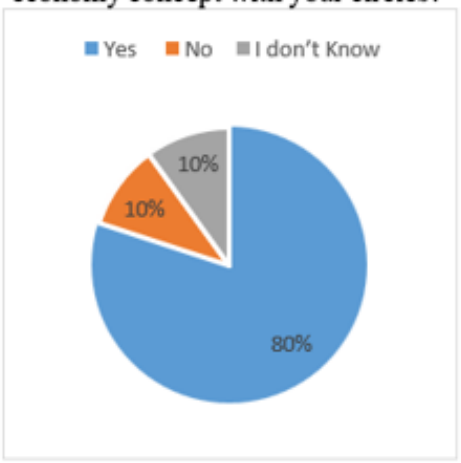




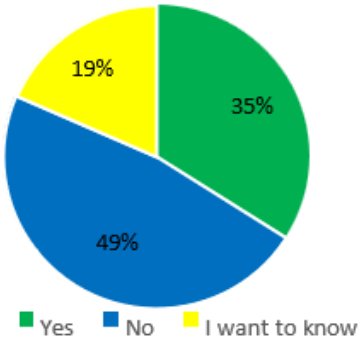
Q 7. Do you want to change your food culture to make circular economy?



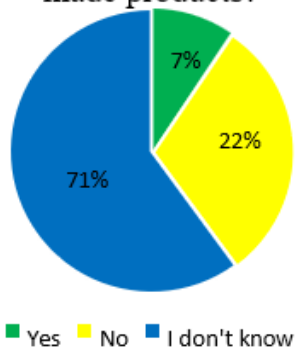
Q 8. Do you want to share circular economy concept with your circles?



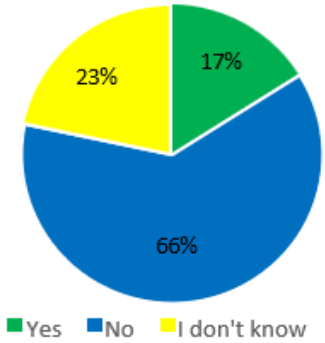
Q 5. Do you know recreational product can be made from waste materials?



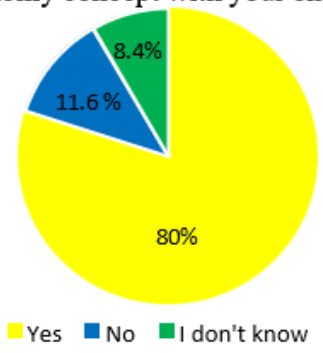
Q 6. Do you want to buy waste made products?



Q 7. Do you want to change your food culture to make circular economy?



Q 8. Do you want to share circular economy concept with your circles?



The sixth question asked whether they buy waste made products that can reduce CO_2 emission and introduce the process of circular economy implementation in the future. About 7% (2020) 25% (2023) and of respondents believe that buying waste made products save money and save environment, and around 22 % (2020) and 45 % (2023) respondents are not sure to buy it. Around 71 % (2020) and 45 % (2023) as majority of respondents said that they do not want to buy waste-based products. The reasons behind their opinions, socio-cultural values, personal emotion and social approval. These factors have to be taken when developing context-based policy for circular economy. However, study have seen the 55% people want to buy waste based products in 2023 that was

only 29% in 2020 study.

The seventh question focused on willingness to change dietary habits for circular economy adoption. In fact, the question seventh in table 2 and 2.1 is more of repetitive type; it just uses another highly marketed key word 'green society'. It is possible that respondents relate more to the 'circular society' concept than 'circular economy concept' or vice versa. By focusing this question to study respondents, Study shared them why Study need to change our current food culture and how 'circular society in terms of circular economy' could save the world. For example, Study told them our current food production system is remarkably inefficient and costly and is significantly production CO_2; 'for every dollar spent on food, society has to pay $2 in health, economic and environment costs' (STUDYF, 2019). Here, Study can notice the difference of opinion where 'Yes' by 23% (2020) and 25 %(2023) of respondents; they suggest '*it is very important*' and 66 %(2020) and 55 % (2023) as major of the respondents it had negative importance. Around 17% (2020) and 20% (2023) of total 247 respondents select 'I don't know' option. This conflict may be due to the awareness or non- awareness of widely used linear food production systems to keep traditional food habits in Bangladesh. When Study compare these data with the third question in Table 1 (e.g. Do you want to reuse second hand products to make circular economy?), 83.7%(2020) and 89% (2023) as the majority of respondents answer as 'Yes' *I want to use second hand products to make circular society*, whereas 10.3%(2020) and 17(I do not know) respondents answer was average 'I don't know', and 'No' by 6% (2020);16% (2023) of respondents . The difference between these two questions is the term as 'circular society or circular economy. Here Study see the effect and need of considering the language formulation and providing the right choices to answer the question itself, which is a very important factor while conducting surveys.

The eighth question (Table 2 and 2.1) concluded the questionnaire by asking the respondents' if they would share the information of circular economy then what the expected benefit should be , and or how to fulfil their moral (environmental, social, political) preferences. These questions are absolutely related to circular policy for the society.

Surprisingly, in both phase of study in 2020 and 2023, 80% of respondents are motivated to share the information of circular economy with their family, friends, neighbors and alike, which is very positive and demonstrate the willingness of respondents towards the implementation of circular economy in Bangladesh. 8.6 %(2020) 10 % (2023) of respondents answered negatively ('No'). Additionally, 11.6% (2020) and 10% (2023) of total study respondents either did not understand what the circular economy means. As for the question eight in (table 2 and 2.1), the public opinion is not enough to justify the role of involved people in the circular economy implementation. The change has to begin from the top tier.

Limitations of the Study

- This study was self-financed and no external funding has been received from anywhere therefore the wide-range area survey was not conceivable.

- The Corona Pandemic has impacted the first phase study in 2020. The filed survey in March, 2020 due to countrywide lockdown the study has been conducted via (Mobile phone, WhatsApp) interview to ensure the contactless survey in Dhaka, Bangladesh.

- Due to Corona Pandemic breakout in 2020 the study has to discard district of Khulna, Bangladesh from study area because of countrywide lock down and the researcher could not travel to another district. Next in 2023, to compare with the first phase study to second phase study the send phase in 2023 also quit Khulna district and choose to conduct survey at the same study area matching with first phase study.

CONCLUSIONS AND FUTURE RESEARCH

To investigate the public perception of circular economy in Bangladesh this research undertook a study that has covered few areas of capital the study had to discard district of Khulna from the study.

City of Dhaka, Bangladesh (see, Fig 5). Study conducted on the age groups of (15-66) and including students, service holders, pensioners and miscellaneous business owner. Results show that while 98% respondents had no idea of circular economy in 2020, but this negative percentage decreased in 2023 that 80% people responded answered nothing about circular economy knowledge where research can see 20% people have at least some idea or hearsay about circular economy. Those who don't know about it still interested to know about the concept and most of the respondents (80%) understood the importance of circular economy. Therefore, communication channels are need to introduce circular economy among the people in general. Likewise, 83.7% (2020) and 89% (2023) thus it can be said that more than 70% respondents want to reuse second hand products to make circular economy happen. This indicates that individuals of all types willingness to participate in the process of circular economy implementation. From this point of view, it could be stated that if Bangladesh takes a shift towards circular economic structure from linear it would get larger public acceptance than the present linear one and the ultimate achievement will be three-folded that is economic, social and environmental.

Furthermore, in order to create an in-depth understanding of the people perception on circular economy implementation, it is important to ensure peoples' active participation in development processes of circular economy from beginning to end. This study shows that 70% as majority of respondents do not want to buy waste-based products from the both study. To overcome this challenge, public policy makers for circular economy should consider some key factors (e.g., socio-cultural values, personal emotion and social approval) in addressing circular culture. Additionally, in the transformation towards the circular economy, people awareness and their preferences are needed to develop novel business models. Therefore, our study offers valuable knowledge especially to know how public see the new processes to implement circular economy in particular context, and how to articulate their preference to design circular business models. The government of Bangladesh may consider the circular economy flow (Fig 1) to design circular business models.

Moreover, this study represents a first step in exploring public perception of circular economy implementation in the context of Bangladesh. Further research could seek to obtain further quantitative and qualitative data from the same context, as well as to expand the research to include other novel circular economy business.

Author Contributions

Md. Munjur E. Moula: Conceptualization, Research questionnaire develop, Methodology, Formal analysis, Writing-original draft and Supervising. **Laboni Khatun:** Conceptualization, Formal Analysis and Reviewing. **Mesbaul Islam Anindo:** Formal analysis, Reviewing and Editing. **Papia Basu, Ashiquzzaman Sohan and Abu Yousuf Md. Abdullah:** Data collection and writing**.** All authors have read and agreed to the final version of the paper.

Professor **Dr. Md. Munjur E. Moula** coordinated this research work while at Aalto University, Finland.

Funding: The authors declare that this study was conducted with self-funding.

Conflicts of interests

There is no conflict of interest among the authors. **Institutional Review Board Statement**: Not applicable. **Informed Consent Statement**: Not applicable.

Acknowledgements: The authors acknowledge the anonymous reviewers whose suggestion and comments helped improving the paper.

REFERENCE

1. Bing, X.; Bing, S.P.C.; Geng, Y.; Guo. X. Survey of officials' awareness on circular economy development in China: Based on municipal and county level, Journal Resource, Conservation and Recycling, 2010, 54(12):1296-1302.

2. Broten, N. An Analysis of Thomas Robert Malthus's an Essay on the Principle of Population.2017, Tailor and Francis ebook.
3. Briguglio, M. Household cooperation in waste management: initial conditions and intervention. In: Environmental economics and sustainability by Brian Chi-ang Lin and Siqi Zheng (eds.), 2017, 111-142, Wiley Blackwell.
4. Brian, C.; Brian, L. Sustainable Growth: A Circular Economy Perspective, Journal of Economic Issue, 2020, 54(2): 465-471.
5. Bhowmik, A.K. Industries' location as jeopardy for sustainable urban development in Asia: a review of the Bangladesh leather processing industry relocation plan, Environment and Urbanization ASIA, 2013, 4: 93-119.
6. CEAP, 2020 Circular Economy Action Plan adopted by the European Commission, available at: https://ec.europa.eu/environment/strategy/circular-economy-action-plan, Visited, May 3, 2020.
7. Cristoni, N.; T. Marcello, T. Perceptions of Firms Participating in a Circular Economy.
8. European Journal of Sustainable Development, 2018, 7(4): 105-118.
9. EMAF. Ellen MacArthur Foundation, What is a Circular Economy? available at: https://www.ellenmacarthurfoundation.org/circular-economy/concept, 2017. Visitedon 13.02.2021.
10. EMAF,2019Ellen MacArthur Foundation,availableat: www.ellenmacarthurfoundation.org/assets/downloads/google-deconstruction- andreuse.pdf, 2019. visited on 12.01.2020.
11. Eskelinen, T.; Eskelinen, M.; Kajanus, J.; Wuorisalo, M.E.; Moula, J.M.; Soriano-Disla,F.G.D. Circular Economy Business Models Addressing Social Acceptance, The ISPIM Innovation Conference-Innovating Our Common Future, Berlin, Germany on 7-10 June 2020.
12. Geng, J.; Sarkis, R.; Bleischwitz, J. How to globalize the circular economy, Nature, 2019, 565 (7738); 153-155.
13. Het, G.B. A circular economy differs from a linear economy, but how? Kenniskaarten - Het Groene Brein. https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map- circulareconomy/how-is-a-circular-economy-different-from-a-linear-economy /, 2013,
14. Visited on 19.01.2021.
15. Heather, A.; Rogers, D.; Pauline, R.; Toms, B. Repairing the circular economy: Public perception and participant profile of the repair economy in Hull, UK, Resources, Conservation and Recycling, 2021, 168.
16. Kalmykova, M.; Rosado, S.L. Circular economy-From review of theories and practices to development of implementation tools, Journal of Resources, Conversation and Recycling, 2018, 135:190-201.
17. Kirchherr, J.; Hekkert, M. Conceptualizing the circular economy: An analysis of 114 definitions, Resources, Conservation and Recycling, 2017, 127: 221-232.
18. Kjaer, L.L.; Pigosso, D.C.A.; Niero, M.; Bech, N.M.; McAloone, T.C. Product/ServiceSystems for a Circular Economy: The Route to Decoupling Economic Growth from Resource Consumption?, Journal of Industrial Ecology, 2019, 23(1): 22-35.
19. Korhonen, J.; Honkasalo, A.; Seppälä, J. Circular Economy: The Concept and its Limitations.
20. Ecological Economics, 2018, 143: 37-46.
21. Kumar, A.; Agrawal, A. Recent trends in solid waste management status, challenges, and potential for the future Indian cities – A review, Current Research in Environmental Sustainability, 2020, 2.
22. Liakos, N.; Kumar, V.; Pongsakornrungsilp, S.; Garza-Reyes, J.A.; Gupta, B. Understanding Circular Economy Awareness and Practices in Manufacturing Firms, Journal of Enterprise Information Management, 2019, 32(17).
23. Marzena, S.; Anna, A.; Joanna, K.; Agnieszka, N. Public awareness of circular economy in southern Poland: Case of the Malopolska region, Journal of Cleaner Production, 2018, 197 (1): 1035-1045.
24. Melanie, H.; Stefanie, H. Measuring the environmental sustainability of a circular economy, Environmental and Sustainable Indicators, 2019, 1–2: 100005.
25. Moula, M. ME.; Sorvari, J.; Oinas, P. Constructing A Green Circular Society, University of Helsinki, 2017, Finland. Unigrafia.
26. Moula, M. ME. Circular Thinking in Times of Covid-19, The Daily Sun Newspaper, July 22, 2020, 7-

11.
27. Moula, M. ME.; Maula, J.; Nusrat, J.; Hamdy, M.; Fang, T.; Lahdelma, R. Researching social acceptability of renewable energy technologies in Finland, International Journal of Sustainable Built Environment, 2013, 2(1): 89-98.
28. Moktadir, M.A.; Rahman, T.; Rahman, M.H.; Ali, S.M.; Paul S.K. Drivers to sustainable manufacturing practices and circular economy: A perspective of leather industries in Bangladesh, Journal of Cleaner Production, 2018, 174: 1366-1380.
29. Nicolò, C.; Marcello, T. Perceptions of Firms Participating in a Circular Economy.
30. European Journal of Sustainable Development, 2018, 7(4): 105-118. Pilat, A.-L.; Selim, D.S.A. Introduction to The Circular Economy, 2018, 5.
31. Pomponi, F.; Moncaster, A. Circular economy for the built environment: A research framework, Journal of Cleaner Production, 2016, 143: 710-718.
32. Hui-ming, L.; Qian, Z.; Xiao-li, Z.; Fei-fei, W.; Lei, S. A survey and analysis on public awareness and performance for promoting circular economy in China: A case study from Tianjin, Journal of Cleaner Production, 2009, 17(2): 265-270.
33. Salminen, J.; Tikkanen, S.; Koskiaho, J. Towards a water-smart circular economy, SYKE report, 2017.
34. Stahel, W.R. Policy for material efficiency-sustainable taxation as a departure from the throwaway society, Philosophical Transactions of The Royal Society A, 2013, 1-19.
35. Upadhayay and Omaima, 2019 S. Upadhayay, A. Omaima, A Survey on Understanding the Perception and Awareness towards a Circular Economy: A Comparative study between Nepal and the USA, Westcliff International Journal of Applied Research, 2019, 3(1): 37-45.
36. Wang, N.; Guo, Z.F.; Wang, H.; Yin, J. The circular economy and carbon footprint: A systematic accounting for typical coal-fuelled power industrial parks, Journal of Cleaner Production, 2019, 229: 1262-1273.
37. World Economic Forum (WEF), Our food system is no longer fit for the 21st century. Here are three ways to fix it, In: World Economic Forum Annual Meeting, 2019, https://www.Studyforum.org/agenda/2019/01/how-to-build-a-circular-economy- forfood/, visited on May 7, 2021.