Preliminary report / Prethodno priopćenje
UDK/UDC 334.72:502/504:678.5(549.3)
DOI https://doi.org/10.32676/n.8.1.1

Eco-friendly Entrepreneurship to Promote Plastic Alternatives

Ekološki prihvatljivo poduzetništvo za promicanje plastičnih alternativa

Proma Barua
Department of Public Administration, University of Chittagong
E-mail: promabarua97@gmail.com

Rafi Ahsan
Department of Finance, University of Chittagong
Email: rafiahsan426@gmail.com

Jyoti Debi
Vision Green Organization
E-mail: jyoti.academic@hotmail.com

Md. Tajul Islam
Department of Public Administration, Comilla University
E-mail: tajulpa13@stud.cou.ac.bd

Naima Tasnim
Vision Green Organization
E-mail: naima.tasnim1@g.bracu.ac.bd

Md Abid Hasan
Vision Green Organization
E-mail: abidhasan2400@gmail.com

Abstract

Plastic production has become a global concern, including in Bangladesh. Among all types of plastic products, single-use plastic is considered treacherous and the most responsible for damaging the natural environment. To replace plastics on a daily usage basis, the entrepreneurs of Bangladesh have reiterated some initiatives to manufacture and promote plastic alternatives. This study aims to assess the market potential, existing challenges, and users'/customers' perceptions of the plastic alternative industry in Bangladesh. Key informant interviews (KIIs) with structured questionnaires were conducted among 15 plastic alternative entrepreneurs and 30 customers through online platforms. The framework analysis method was used to analyse and interpret the collected data. Despite highlighting some challenges, plastic alternative entrepreneurs contribute significantly to replacing plastic products, and the market potential is quite promising for this industry. Moreover, this study portrays an efficacious inclination of consumer behaviours towards using plastic alternatives. By following the concept of the green economy, the entrepreneurs of the plastic alternative industry in Bangladesh are gradually able to replace plastic products and contribute toward building a sustainable city.

Key words: green economy, green entrepreneurship, plastic pollution, plastic use, sustainability
JEL classification: D90, Q56

Sažetak

Proizvodnja plastike postala je globalna briga, uključujući tako i Bangladeš. Među svim vrstama plastičnih proizvoda, plastika za jednokratnu upotrebu smatra se opasnom i najodgovornijom za uništavanje prirodnog okoliša. Kako bi zamijenili plastiku u svakodnevnoj upotrebi, poduzetnici iz Bangladeša ponovno su pokrenuli neke inicijative za proizvodnju i promicanje proizvodnje alternativa plastici. Rad ima za cilj procijeniti tržišni potencijal, postojeće izazove i percepcije korisnika/kupaca o industriji proizvodnje alternativa plastici u Bangladešu. Provedeni su strukturirani dubinski intervjui s ključnim dionicima na uzorku od 15 poduzetnika plastičnih alternativa i 30 kupaca putem internetskih platformi. Za analizu i interpretaciju prikupljenih podataka korištena je metoda okvirne analize. Unatoč isticanju nekih izazova, proizvođači plastičnih alternativa značajno pridonose zamjeni plastičnih proizvoda, a tržišni potencijal je prilično obećavajući za ovu industriju. Štoviše, istraživanje prikazuje sklonost ponašanja potrošača prema korištenju alternativa plastici. Slijedeći koncept zelene ekonomije, proizvođači alternativa plastici u Bangladešu postupno mogu zamijeniti plastične proizvode i pridonijeti izgradnji održivog grada.

Key words: zelena ekonomija, zeleno poduzetništvo, plastično onečišćenje, uporaba plastike, održivost
Jel classification: D90, Q56

1. Introduction

Nowadays, plastic is an inseparable part of human life. The major inventions of plastic happened between the two World Wars; cellophane was invented in 1913, polyvinyl chloride (PVC) in 1927, polystyrene and nylon in 1938, and lastly, polyethene in 1942 (Chalmin, 2019). The first commercial use and large-scale production of plastic can be dated back to the 1950s (Hosler et al., 1999). Over time, global plastic production (GPP) became 322 million metric tons in 2015, whereas it was only 1.5 million metric tons in 1950 (Shanmugam et al., 2020). During the Covid-19 pandemic in 2020, the GPP has become 367 million metric tons even after decreasing by 0.3% from the previous year (Kaul, 2021). However, Chalmin (2019) stated that the average growth rate of plastic production has been 8.5% per year since 1950. Lusher et al. (2017) projected that plastic production might double (of the then amount) by 2025 and more than triple by 2050 if proper actions are not taken.

Plastics are generally produced from both natural and synthetic or semi-synthetic organic material. In their article, Özel et al. (2019) mentioned that the raw materials used to produce plastic are rubber, vegetable cellulose derivatives, limestone, caseins, by-products of coal and petroleum, etc. There are mainly about seven types of plastics that are currently prevalent worldwide; those are – high-density polyethene (HDPE), low-density polyethene (LDPE), polypropylene (PP), polystyrene (PS), polyvinyl chloride (PVC), polyethene terephthalate (PET), Polyethylene and others urethane (PUR) resins, and polyester, polyamide, and acrylic (PP&A) fibres (Singh, 2020). Worldwide, plastic has been used for various purposes, and many sectors are consuming it. HDPE is used to manufacture milk containers, shampoo bottles, cleaning agents, etc.; LDPE makes plastic bags, plastic food wrappings, etc.; PVC is used for plastic piping, vinyl flooring, cabling insulation, roof sheeting, etc.; Polypropylene is used to make bottle lids, food tubs, furniture, automobile parts, etc.; Polystyrene comes handy to produce plastic cutlery, food takeaway containers, etc.; and PET is used for plastic water bottles/soft drink bottles (Rhodes, 2018).

The principal consumer of plastics is the packaging industry which consumes almost 36%-45% of the total plastic produced worldwide (Rhodes, 2018; Tsakona et al., 2020). Other industries contributing significantly to plastic production and usage are infrastructure and construction, textiles, transportation, electronic goods, and industrial machinery (Tsakona et al., 2020). Rhodes (2018) has mentioned that the packaging industry consumes 146 million metric tons of plastic, the building and construction industry requires 65 million metric tons, the textiles industry devours 59 million metric tons, consumer and institutional products contain 42 million metric tons, transportation industry captures 27 million metric tons, and electrical and electronic products contain 18 million metric ton. Among various usages of plastic, single-use plastic is notably dangerous for the natural environment. According to WWF-Australia (2022), ten types of single-use plastic that hinder the environment the most include straws, drink stirrers, balloon sticks, cotton buds, coffee cups and lids, cutlery, cups, containers, and plates. A report by the United Nations Environment Program (UNEP, 2018) estimated that about 1-5 trillion plastic bags are used each year globally, which indicates that at least 10 million plastic bags are consumed every minute. However, a matter of slight relief is that more than 60 countries have put bans and other restrictions on single-use of plastic to date (UNEP, 2018).

Almost 50% of the total produced plastic wastes are single-used plastics which are mainly plastic bags, straws, stirrers, and takeout food packages (Lindwall, 2020). Between 1950 and 2015, only around 9% of the total amount of plastic produced has been recycled, and only 12% has been incinerated. Consequently, the remaining 79% has been stored in landfills or released directly into the natural environment (Geyer et al., 2017). Lebreton et al. (2019) have marked Asia as the largest contributor to global plastic waste. As the packaging industry is the highest plastic consumer, they also produce the highest amount of plastic waste, i.e., 46% of the total plastic waste (Tsakona et al., 2020). As per the type of plastic, HDPE creates 13.7% of waste, LDPE contributes 16.8%, PP contains 17.7% of waste, and PVC, PET, and PS respectively contribute 10%, 8.6%, and 6.4% of plastic waste (Tsakona et al., 2020).

Around the world, the ratio of GPP and carbon dioxide (CO2) emission is 1:5 (Ramsden, 2020). Single-use of plastic has been the most notorious in terms of plastic waste management (McClure, 2021), and the concept of alternative plastic products (especially to replace single-use of plastic) is getting popular gradually (Amsen, 2020). The concept of plastic alternatives has been in place for a few decades, and currently, plastic alternatives consist of bioplastics, bacterial plastic, stone wool, carbon capture, etc. (Pilkington, 2021). Some plastic alternative products are clay and wooden utensils, bamboo furniture, clay, wooden jewellery, jute or paper bags, hemp bags, etc.

Paper bags, jute bags, hemp bags, etc. are made out of different parts of plants (Iheukwumere et al., 2019), which could replace plastic bags that are made of polyethene, a thermoplastic made from petroleum (Nagalakshmaiah et al., 2019). Paper bags, also known as Kraft bags (L., 2020), are made of wood, recycled wood, sugarcane waste, jute twine, coconut husk, etc. are becoming a fast-rising alternative for plastic bags (Jalan, 2020). Paper bags are also a cost-efficient option for non-food packaging. Similarly, tote bags, hemp bags, jute bags, and wool bags are consecutively made of cotton, hemp plant, jute plant, and wool. These bags can be reused several times before final disposal. These bags biodegrade within a short amount of time when disposed into the environment (Iheukwumere et al., 2019). These bags are more desirable as they eliminate waste, are cheap to produce, and are easily recyclable (Wong, 2011).

Another popular plastic alternative product type is bamboo or clay-made utensils and cutleries. In Bangladesh, there are a large group of people who make clay products such as clay pots and plates, mugs, bowls, flower vases, etc. (Mimi, 2017). Nowadays, bamboo-made and wood-made utensils are also gaining popularity along with clay products. Different shop owners and online entrepreneurs are doing great in their businesses by selling these products. The most popular products which are made of bamboo and wood are kitchen utensils, flower vases, trays, bowls, bamboo straws, and toys for children.

Plastic furniture became popular back in the 1950s due to its simplicity, functionality, and flexibility. These were also budget-friendly and considered modern in design (Lacey, 2017). However, nowadays, furniture made of bamboo (Boran et al., 2013) and cane (Wiafe et al., 2014) is getting the limelight in many countries. They are also cost-effective, moreover, eco-friendly in nature. Some popular bamboo-made/cane-made furniture is sofa set, chair, swing, etc. Furthermore, wooden and clay jewellery are very popular among women these days (Mrittika, 2021). They are both budget and eco-friendly.

In Bangladesh, the size of the plastic industry is growing day by day. During the last two decades, it has played an important role in the Bangladeshi industry sector. The plastic industry started its journey in Bangladesh in the 1960s by making plastic toys, photo frames, and plastic spare parts for the jute mills (Majumder et al., 2018). At present, there is a total of 2,997 plastic factories in Bangladesh; among them, 1,965 are small, 980 are medium, and 52 are large (Shimo, 2014). Most of the plastic industries are situated in the capital city, Dhaka, and very few are based in Chattogram (previously known as Chittagong) and Narayanganj (Islam, 2012). According to Tembon (2021), approximately 646 tons of plastic waste is generated daily in Dhaka, and only 37% of that waste is recycled. However, the Department of Environment (DoE) mentioned that around 1,700 tonnes of plastic waste are generated every day in the country, and only half of them is recycled (United News of Bangladesh, 2021). Tembon (2021) has also stated that the Covid-19 pandemic has accelerated the amount of plastic waste since throwing out used masks and PPEs has become a global phenomenon. However, Bangladesh has taken several steps like banning plastic bags, plastic packaging for food, beverage, and agro-inputs, and single-use plastic in coastal areas and all hotels and motels across the country (United News of Bangladesh, 2021). Furthermore, several types of plastic alternative products are being adopted and becoming widespread in Bangladesh progressively (The Business Times, 2019; Bhuiyan, 2020; Gideon, 2020).

Although plastic alternative products are gradually getting popular in Bangladesh, no significant study has been traced that highlights the trend

of the plastic alternative industry in the country. In addition to that, no significant research works are evident that concentrate on the businesses of eco-friendly products and/or plastic alternative products. The motivation behind such initiatives, the potential and existing challenges in the industry that facilitate the market actors, and the types and preferences of the customers of these plastic alternatives are not documented largely. The objective of this research study is to assess the dynamics of the plastic alternative industry in Bangladesh, probe into the customers' preferences, and explore the existing challenges and potential within this industry. The research questions that steer the study are –

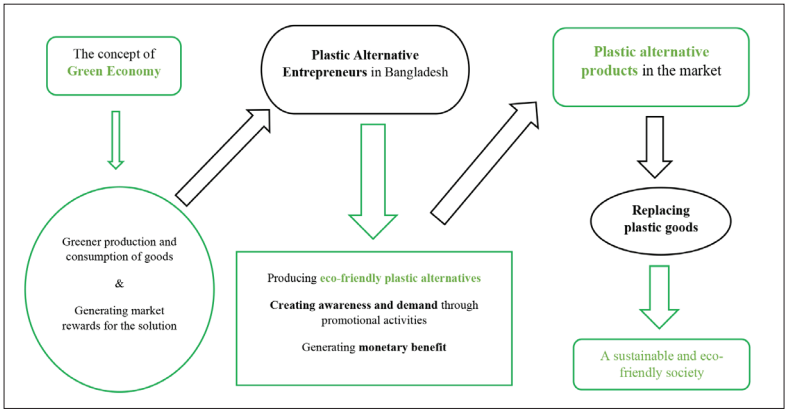
- What are the criteria of the existing eco-friendly entrepreneurs and their initiatives? How do they promote plastic alternatives among their potential customers?
- What are the challenges faced by these entrepreneurs? What are the market potentials identified by these entrepreneurs?
- What are the preferences of the consumers in terms of purchasing and using plastic alternative products?

2. Conceptual Framework

This study is ideated based on the concept of the Green Economy (Loiseau et al. 2016). The concept of the Green Economy portrays that the existing economic models fail to ensure the harmonious coexistence of nature and society, whereas the Green Economy model safeguards sustainable production, distribution, and consumption of goods (Ivlev et al., 2018). Neimark et al. (2020) highlighted that green economy interventions always focus on generating market rewards for solutions that protect the environment and ensure inclusive socio-economic development for the locals. The conceptual framework (Figure 1) of the study shows how plastic alternative entrepreneurs are implementing the same in Bangladesh.

The conceptual framework (Figure 1) assumes that the plastic alternative entrepreneurs in Bangladesh are following the concept of the Green Economy to promote their businesses. It is worth exploring whether the plastic alternative entrepreneurs are utilizing local handicraft and artisan industries, using eco-friendly goods as raw materials, developing a viable product value chain, promoting their products and services to potential customers, and finally making plastic alternative products available in the market. Furthermore, it is presumed that these plastic alternative products are capable

Figure 1 The concept of the Green Economya



Source: Authors.

Table 1 List of plastic alternative entrepreneurs

Sl No	Name of the Organization	Starting Year	Annual Net Profit (in BDT)	Type of Products/Services
01	**Addyantika** (Cottage enterprise)#	2019	BDT 3,00,00	Wooden kitchen items, home decor items, keyrings, wood-made lamps, etc.
02	**Baah** (Micro-enterprise)	2020	More than BDT 2,00,00*	An online platform to capacitate and promote rural entrepreneurs who produce eco-friendly plastic alternative products
03	**Bansh Bilash** (Cottage enterprise)	2019	BDT 1,20,000	Bamboo-made home decor items, furniture, mugs, bottles, etc.
04	Bansh O Beter Kabbo (Cottage enterprise)	2020	BDT 1,44,000	Cane-made baskets, tools, Bamboo-made kitchen items, home decor items, etc.
05	**Bansh Wala** (Micro-enterprise)	2019	BDT 12,00,000	Bamboo-made keyrings, home decor items, kitchen items (trays), furniture (swing), etc.
06	**Craftyaan** (Cottage enterprise)	2019	BDT 5,40,000	Seagrass-made baskets and planters
07	**Deshi Ponno** (Cottage enterprise)	2020	BDT 6,40,000	Jute-made coasters, planters, bamboo-made curtains, cane-made sitters, baskets, etc.
08	**Ecovally BD** (Cottage enterprise)	2020	BDT 1,50,00 – 2,00,00	Leaf (Areca)-made plates, trays, one-time food containers, Bamboo-made coffee mugs, cups, etc.
09	**Eco Bangla** (Micro-enterprise)	2016	BDT 16,00,000	Coconut shell-made mugs, keyrings, Bamboo-made home/office decor items, wooden photo frames, wood-made kitchen and dining tools, etc.
10	**Icche Ghuri** (Cottage enterprise)	2020	BDT 2,40,000	Jute-made bags, home decor items, etc.
11	**MaskOn** (Cottage enterprise)	2020	BDT 7,00,00	Cloth-made masks and tote bags
12	**Sisters Eco Jute Products Shop** (Cottage enterprise)	2021^	BDT 95,000**	Jute-mad bags, purses, home decor items, etc.
13	**Shaathi Bangladesh Limited** (Cottage enterprise)	2020	BDT 5,00,000	Cloth-made reusable sanitary napkins
14	**Suitcase** (Cottage enterprise)	2019	BDT 84,000	Cloth-made bags, purses, masks, etc.
15	**TechShoi** (Cottage enterprise)	2020	BDT 3,00,00	A platform to promote and sell different types of plastic alternative products

Note: *Baah was not willing to share the exact figure of their annual net profit. ^During the interview, Sisters Eco Jute Products Shop marked exactly one year of their business. **In ten months. #As per the National Industrial Policy 2016 of the Government of Bangladesh, cottage enterprises are those organizations where the total number of employees does not exceed 15 and the total value of the fixed asset (replacement cost except land and factory setup) is not more than BDT 1 million. The micro-enterprises are those organizations, which consist of 16-30 employees and the total value of the fixed asset is between 1 million and 7.5 million.

Source: Authors.

of replacing plastic products significantly and contributing to a sustainable society in the long run.

Leveraging this concept, this study aims to assess the market potential, existing challenges, users'/ customers' perceptions of such initiatives, and the ultimate feasibility of such interventions.

3. Methodology

The study is qualitative in nature and guided by the framework analysis method (Gale et al., 2013). The research team has scouted and contacted 46 entrepreneurs who run e-commerce small businesses of plastic alternative products. Among 46 entrepreneurs, the research team interviewed 15 plastic alternative entrepreneurs (Table 1) using the purposive sampling method (Palys, 2008). The in-depth interviews/IDIs (Brounéus, 2011) with the

selected entrepreneurs have been guided by a pre-developed checklist. There are 20 questions on the checklist. Most of the questions are open-ended except for some questions that can be answered objectively. Predominantly, the authors have allowed the entrepreneurs to express themselves freely as long as their answers/speeches were relevant to this study.

Three types of criteria have been considered while selecting the entrepreneurs- i) who have a business that promotes plastic alternative products/services, ii) duration of the venture is at least one year, and iii) the average profit is about BDT (Bangladeshi Taka) 75,000 (approximately $870) annually.

Moreover, a total of 30 customers/users of plastic alternative products have also been selected from the customer database of the entrepreneurs and ventures using the convenience sampling method (Stratton, 2021). The interviewed customers/users have been selected from the customer database of the entrepreneurs and ventures who participated in the study. Questionnaire surveys (Young, 2015) followed by pre-designed checklists were used to collect data from the customers/users. The research team conducted the interviews through online platforms such as Zoom, Microsoft Teams, Skype, Google Meet, Google Form, etc., from December 2021 to May 2022.

To analyze the acquired data, the framework analysis method has been followed. Adopting Gale et al. (2013), an analysis framework has been developed particularly for the study. At first, the interview texts (answers from the respondents) were arranged in a logical order and divided into several sub-groups as per the objectives of the study. Then, all the findings were put thematically into a Microsoft Excel sheet to analyze manually. Finally, the analyzed data has been interpreted into the results of this study.

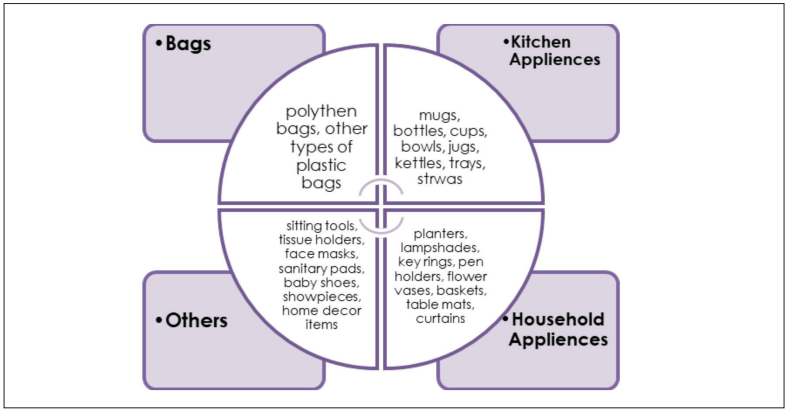
4. Results and discussion

4.1. About the plastic alternative entrepreneurs and their businesses

The study findings indicate that plastic alternative entrepreneurs can replace several kinds of plastic-made products, such as different kinds of bags, kitchen appliances, household appliances, and several other items (Figure 2) through their ventures. These entrepreneurs mostly utilize natural products like coconut shells, bamboo, clay, jute, cane, and cloth to replace plastic.

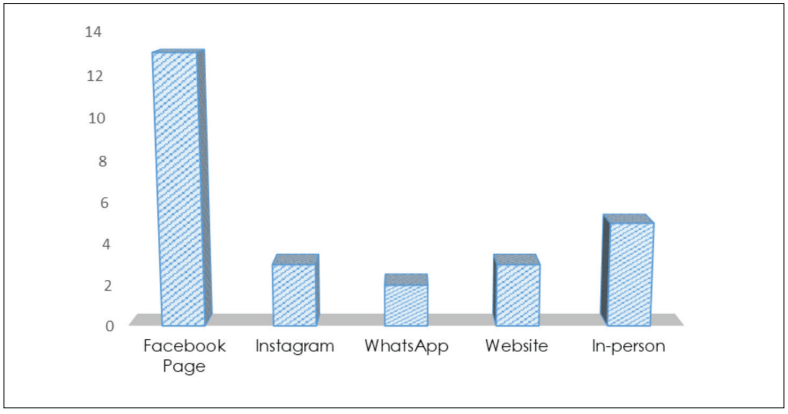
These green entrepreneurs were mainly motivated by their passion for safeguarding the environment

Figure 2 The types of plastic products that are being replaced through the ventures adopted by Bangladeshi plastic alternative entrepreneurs



Source: Authors.

Figure 3 Different social media and online platforms that eco-friendly entrepreneurs use to promote and sell their plastic alternative products.



Note: The numbers are not mutually exclusive.

Source: Authors.

from plastic pollution, contributing to climate action, and ensuring a healthy community. 3 out of the 15 entrepreneurs who participated in the study said that their surroundings (such as growing up in a rural setup where the use of natural products is more prevalent) had inspired them to initiate such eco-friendly ventures. The entrepreneurs also ensured that their artistic talents of making unique and handcrafted products had paved the way for doing business out of this concept.

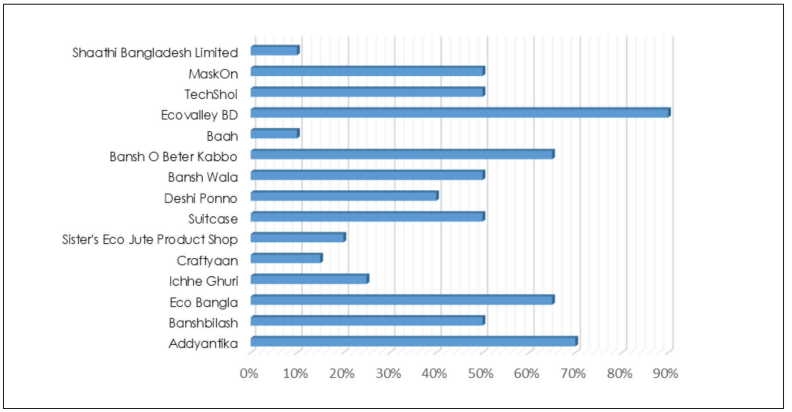
The scope, growth, and potential of the plastic alternative market in Bangladesh are quite promising. The current market is not highly competitive and has many opportunities in the future compared to other sectors. The boom of information and communication technology (ICT) and reliance on e-commerce have positively influenced the growth of the plastic alternative industry. 4 out of the 15 entrepreneurs ensured that they had entered this business since they were looking for an industry that is less competitive and where they would get a better chance to grow bigger in a short period of time.

All of the interviewed entrepreneurs are confident that their products are good enough to replace plastic products. In fact, 80% of the entrepreneurs assured that their products are even better than plastic products considering their various positive traits (such as being good for health, looking fancy, being user-friendly, etc.). Although the entrepreneurs admit that plastic alternative products are costlier in general, however, a few plastic alternative products (such as cloth-made reusable sanitary napkins, jute-made bags, cloth-made face masks, etc.) are cheaper in the long run (as their plastic counterparts are made for single-use while the alternative ones can be used multiple times). Interestingly, the entrepreneurs have highlighted that most customers opt for these comparatively pricey plastic alternative items because of their uniqueness, poshness, and aesthetic experience. The durability of plastic alternative products is an issue (especially if it is compared with plastic products). Overall, green entrepreneurs express that they are satisfied with the growth of their businesses and aspire for more support from the government, collaboration with relevant stakeholders, and better customer engagement.

4.2.Promoting plastic alternatives

All of the interviewed initiatives except two rely on Facebook to promote and sell their products. Moreover, these businesses also utilize other social media platforms such as Instagram and

Figure 4 The ratio of repeat customers of plastic alternative businesses.



Source: Authors.

WhatsApp. One-fifth of the entrepreneurs also have a website that they use for product promotion, sales, and customer engagement. One-third of the entrepreneurs conduct different in-person activities to promote their products, and two of them (Ecovalley BD and Shaathi Bangladesh Limited) heavily rely on in-person programs.

In terms of using social media platforms to promote their products and services, the eco-entrepreneurs found paid advertising (also referred to as boosting) on social media pages is a very effective way to promote their ventures. Although all the entrepreneurs admitted that in-person activities are worthwhile, however, two-thirds of the entrepreneurs are not currently doing it due to a lack of financial and operational resources. Different in-person activities include contacting the NGOs, communicating with different stakeholders, conducting promotional activities in the local market, demonstrating products and services in front of potential customers, etc. One of the interviewed enterprises, TechShoi, promotes its products within its own network following a student-centric approach.

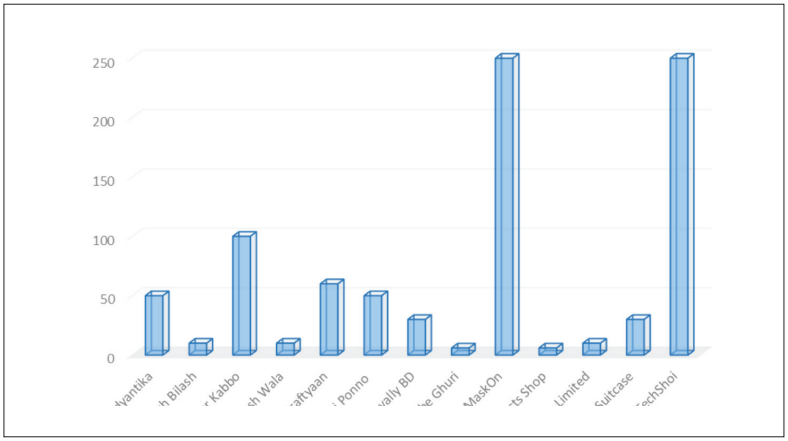
All of the entrepreneurs have a very wide range of repeat customers, an average of 40%-50%. Ecovally BD comparatively gets more repeat customers than others, which is around 90% (Figure 4). Moreover, the entrepreneurs informed that the best promotional contents are unique products (aesthetic, fancy, uncommon, etc.), good photos, and storytelling. Additionally, contacting NGOs and peer marketing also come in handy time-to-time.

4.3. Market challenges versus the potential of the plastic alternative businesses in Bangladesh

This study shows that all plastic alternative entrepreneurs face unique challenges. For instance, one of the businesses, Addyantika, uses coconut shells as raw materials and sometimes, they face difficulties in collecting the required shapes of coconut shells. Craftyaan uses seagrass as raw materials, and they experience significant problems if the weather is consistently bad. Deshi Ponno highlighted that their raw material is cane, and good quality canes are imported from Myanmar and Indonesia. So, they are quite dependent on the import of those goods. Bansh Wala said that they need to take permission from the Forest Department before collecting bamboo. So, to sum up, it can be stated that the supply chain of plastic alternative is not well-defined, which create hindrances for entrepreneurs.

2 of the businesses underlined that they do not have the required types of machinery; hence, they have to prepare the plastic alternatives using their hands and crafting skills, which makes the products

Figure 5 The number of customers of plastic alternative entrepreneurs in a month.



Note: Eco Bangla and Baah did not share the information about their number of customers in a month. Moreover, MaskOn and TechShoi sell inexpensive products. Hence, their number of customers in a month is significantly more than other businesses.

Source: Authors.

expensive as well. Shaathi Bangladesh Limited underlined that the prices of their raw materials, i.e., different types of cloths, fluctuate very frequently, which makes it difficult for them to set a fixed price for their products.

13 out of 15 entrepreneurs experienced hurdles from their families and surroundings as the market is very niche and unpredictable. 11 out of 15 business owners informed that they do not have enough skilled people to work for them to make the products, and they also do not have the experience. One of the businesses, Eco Bangla, shared that initially, they had to survive a financial loss of BDT 2,00,000 ($ 2,360). Suitcase started their venture only with BDT 100 (which is around $1). In that connection, all of them (except 2) informed that they did not receive any support or grants from government agencies, NGOs, and/or other donors. Deshi Ponno took out a loan of BDT 2,00,000 from Bangladesh Krishi Bank (BKB) at a 4% interest rate, and their artisans also received 3-4 capacity-building training sessions from local NGOs. Also, one plastic alternative promoter (they do not manufacture any products but facilitate the market linkage), Baah, received funds from NGOs (such as Practical Action, Waving Bangladesh, etc.) to capacitate the rural entrepreneurs who produce plastic alternative products. Bansh Bilash applied for an SME (small and medium enterprise) loan and is yet to get a decision on that.

Nevertheless, the plastic alternative entrepreneurs mentioned that the market is increasing gradually. Customers (both existing and potential) are becoming aware of their own and family's health and are circumspectly being encouraged to use plastic alternative products. Figure 5 shows the market size for the interviewed plastic alternative entrepreneurs. The figure displays that each plastic alternative business has its own kind of market potential and struggles. However, it is a little bit difficult to understand their actual business size as some of them did not feel comfortable sharing their business information.

Moreover, all the plastic alternative entrepreneurs have highlighted that there is very limited market competition (since most of the products are niche and unique). Eco Bangla also import their products abroad, and according to them, the foreign market absolutely loves their products, and there is a huge growing demand. Craftyaan also confirmed that

they have a good market abroad. However, Sisters Eco Jute Products Shop shared that the presence of agents/brokers is troublesome for them as these brokers/agents take a major share of their profit from exporting their products, and they do not know how to export their products without involving the agents/brokers (the scenario is almost same for others as well). Interestingly, only 3 of the business owners marked plastic products as threats to their products/businesses.

All of the businesses (except MaskOn) would like to expand their businesses, and 80% of them would like to diversify their products/items/services. However, they have also admitted that people are not fully aware of these plastic alternative items. So, this is a market constraint for now, which is also a potential. Because if these untapped customers can be made attracted to these eco-friendly products, undoubtedly, the plastic alternative industry in Bangladesh will see rapid growth soon.

4.4. Consumers of plastic alternative products and their preferences

A total of 30 plastic alternative users who took part in the online questionnaire survey have expressed details about the types of plastic alternative products that they use and the types of plastic products that they are replacing (Table 2).

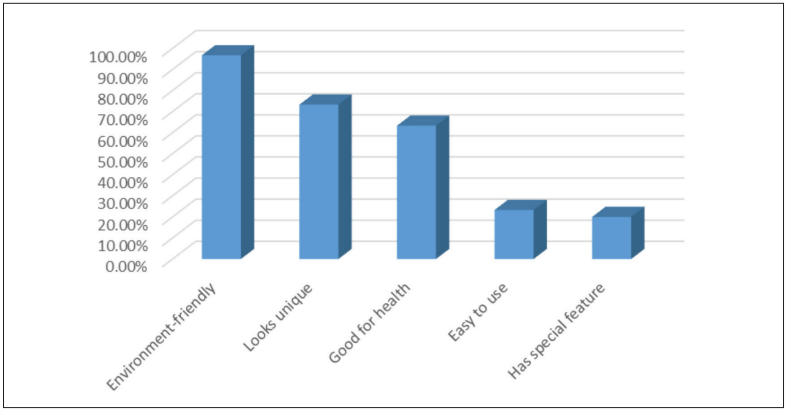
When asked what they like about plastic alternative products, more than 95% responded that they (plastic alternatives) are environment-friendly. More than 70% of consumers opted for the unique looks of plastic alternative products. Other reasons include being good for health, being easy to use,

Table 2 The usage of plastic alternative products

Types of plastic alternatives that the consumers use	Types of plastic products that they are replacing
Cane-made boxes and furniture	Plastic-made boxes
Clay-made plates, bowls, teapots, and mugs	Plastic-made plates, cups, mugs, bowls, etc.
Cloth-made bags	Polythene bags and plastic-made packaging material
Jute-made bags, rugs, mats, and multipurpose folders	Plastic-made pen holders, boxes, polythene bags, and plastic-made packaging material
Paper-made pen holders	Plastic-made pen holders
Wooden cups, trays, spoons	Plastic-made cups, mugs, boxes, spoons, bowls, etc.

Source: Authors.

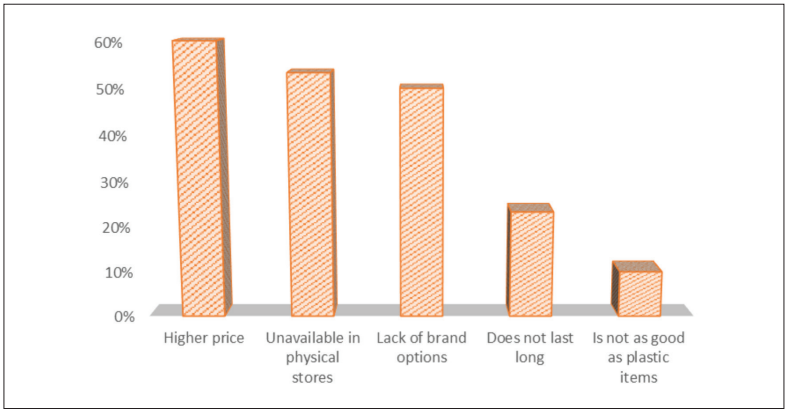
Figure 6 What the consumers like about plastic alternatives.



Note: The percentages are not exclusive of each other.

Source: Authors.

Figure 7 What the consumers do not like about plastic alternatives.



Note: The percentages are not exclusive of each other.

Source: Authors.

and having special features (Figure 6).

On the other hand, the aspects that the customers do not like are higher prices, unavailability in physical shops/markets, and lack of alternative brand options in the market (Figure 7). In this regard, more than 80% of the interviewed customers/users have suggested increasing the availability of plastic alternative products, and more than 70% of them recommended lowering the prices.

Regarding the promotion/marketing of these plastic alternative products, around 40% of the interviewed users have confirmed that they have known about plastic alternative products from in-person communication with their friends, families, acquaintances, etc. Although Facebook is one of the biggest platforms for promoting and selling plastic alternatives, only 20% of them were informed by Facebook pages. Others were informed by advertisements on TV, other social media pages, campaigns, etc.

More than 50% of the interviewees think that plastic products can be fully replaced by these alternatives. However, more than 60% of the customers prefer to buy their desired products from a physical store. The motivation that drives the customers toward buying and using plastic alternatives the most is to make a sustainable world by protecting the environment through assisting the plastic alternative industry and reducing plastic pollution.

To assess the customers' experience, the authors asked them to rank the business/shop/service (plastic alternative product/service) that they availed. The majority of the respondents rank their availed products/services within a range of 6-8 (on a Likert scale, 10 being the best). 90% of the users expressed that they would purchase plastic alternative products again. Furthermore, the customers mentioned that they would like to use new plastic alternative products, such as leaf-made plates, bamboo-made/cane-made straws, eco-friendly bubble wrap, etc.

All the interviewed customers have expressed willingness to encourage other people to use plastic alternatives. In this connection, the customers expect that in the future, changes and modifications in the industry will comprise new designs that are more durable, more options (wide range of products), and reasonable pricing.

4.5. The associated challenges of using plastic alternative products: reliance on online platforms, unregulated product packaging, and lack of quality control

This study shows that almost 90% of plastic alternative manufacturers and sellers solely rely on online platforms (mostly social media platforms). Especially after the Covid-19 pandemic, online shopping/purchasing has become immensely popular among entrepreneurs and customers in Bangladesh (Showrav et al., 2021), as it has been considered the most effective way to showcase and sell plastic alternative products (other products as well). The easy access to these online/social media platforms is one of the unique aspects that makes them widely popular. For the plastic alternative entrepreneurs in Bangladesh, online platforms offer a "space" that is almost free of cost, free from administrative hassles, and highly connecting. These online platforms also allow entrepreneurs know more about their target group and their preferences. Therefore, they can strategize accordingly. Digital advertisements can be circulated targeting specific groups of people, which makes promotional activities more effective and help entrepreneurs reach more potential customers. However, this study also shows that only around 30% of the interviewed customers knew about plastic alternatives from Facebook and other social media platforms, which is shocking and raises the question if social media platforms are as effective as in-person communication in convincing the target groups of potential customers.

In this regard, another question may arise if these online platforms include people from diverse backgrounds. Undoubtedly, the twenty-first century is the era of communication and technology, and Bangladesh has achieved tremendous success in this sector (Chowdhury, 2020). Still, almost 54% of people in Bangladesh, especially from rural areas, do not have a stable internet connection and appropriate devices to access the internet (UNB, 2020). However, the Multiple Indicator Cluster Survey 2019 shows that 62% of people cannot access the internet at home (Bangladesh Bureau of Statistics et al., 2019). Furthermore, this study reflects that all of the interviewed entrepreneurs are based in big cities in Bangladesh. Hence, rural entrepreneurs (or artisans and crafters) might not get the same facilities in entering this niche market. Although venture like Baah is creating a bridge between rural talents and urban demand, sole reliance on online platforms might shrink the opportunities for the existing and future entrepreneurs interested in the plastic alternative industry.

Another concern that is associated with the growth and fundamental principle of the plastic alternative industry is packaging. So far, in Bangladesh, there is no specific standardized procedure for eco-friendly packaging. Eco-friendly packaging refers to selected designs and materials in boxes, mailers, and other packaging supplies so that their impact on the environment is minimized (Sastre et al., 2022). Although eco-friendly packaging varies from company to company, it generally considers reducing waste, maximizing recycling, and increasing the usage of renewable energy and biodegradable materials during production. Plastic packaging can be considered a major factor in the adverse effects on the environment. Usually, the materials used in online product packaging, such as plastic tape, polythene bags, rubber boxes, bubble wraps, etc., are not eco-friendly, which leads to more waste in households. Due to the absence of any standardized practice, it can be difficult for many entrepreneurs to get involved in distributing eco-friendly products through alternative shipping. Resultantly, the eco-friendly plastic alternatives end up creating more plastic waste.

Regarding the regulation, it is not only packaging, but also most plastic alternative products do not require to follow any standardization process. Mostly these plastic alternative products lie under the product category “cottage industry goods”; hence do not require any approval from the Bangladesh Standards and Testing Institution (BSTI). One of the plastic alternative businesses, Shaathi Bangladesh Limited, informed the authors that although they manufacture cloth-made reusable sanitary napkins which is a health and hygiene products, there is no assigned authority to vet their products as this product is categorized as cottage-industry-item. Due to the lack of any regulatory body, the market is highly controlled by a few entrepreneurs, and the customers do

not have many options to assess and choose from. Since this industry will hopefully boom and flourish, introducing a standardized quality testing facility will safeguard the quality of the products and services.

4.6. A journey towards "sustainability": experience of a developing country

Plastic alternative entrepreneurs in Bangladesh are pursuing the concept of a green economy to promote their businesses (Neimark et al., 2020). Plastic alternative entrepreneurs are creating more green jobs, offering eco-friendly options, and promoting sustainable lifestyles. Bangladesh, being one of the most climate-vulnerable countries in the world, is well aware of the terribly negative impacts of climate change (Khan, 2013). Plastic pollution, one of the factors that expedite climate change, is also highly prevalent in Bangladesh (Hossain et al., 2021). The plastic alternative industry in Bangladesh can be an example of success in integrating the theory of sustainability with the tradition of other developing countries.

Like many other developing countries, Bangladesh has a rich history of craft items that are eco-friendly and sustainable (Mimi, 2011). Interestingly, most of these traditional items were in use before the prevalence of plastic items. Although plastic products were introduced in Bangladesh in the 1940s, plastic products gained immense popularity only after the 1990s (Islam et al., 2017). Looking back to the eighties or nineties, cane-made kitchen items, wooden crockeries, jute-made bags, and paper-made showpieces were inseparable parts of most households both in urban and rural parts of the country. Introducing plastic items did not only replace these traditions but also put a threat to the livelihood of the crafters and artisans, who are mostly from rural communities. In Bangladesh, the cottage industry itself created employment for 13.16 million and small 0.56 million and small 6.6 million people (Begum, 2020). Moreover, it is established that cottage and micro-enterprises deliver the best results in reducing inequality, ensuring alternative products to plastics, and ensuring sustainable development goals (SDGs) (Begum, 2020).

Relaunching/rebranding these eco-friendly plastic alternatives will pave the way toward a sustainable lifestyle as this newly popular industry provides hints that these traditional items are no less effective than plastic items; rather, they are healthier, fancier, and more appealing. In this connection, different types of small and medium enterprises and cottage industry ventures are gradually becoming significant to the economic development of Bangladesh. Plastic alternative manufacturers now believe that if people are empowered with adequate eco-friendly options, they will no longer use plastic products (Saif, 2021).

To make this plastic alternative industry sustainable in the long run, Bangladesh Small and Cottage Industries Corporation (BSCIS), the responsible authority for the promotion and registration of small and cottage industries, can adopt several initiatives, such as conducting advisory and promotional services, capacitating the green entrepreneurs, offering skill development programs to the artisans and crafters, developing linkage between plastic alternative entrepreneurs and other relevant stakeholders, and promoting the plastic alternative products by arranging fairs and other showcasing events (Tasneem et al., 2014).

5. Conclusion

The findings of this study indicate that the entrepreneurs of the plastic alternative industry in Bangladesh can replace plastic products following the concept of a green economy. By utilizing local handicrafts, artisan industries, and eco-friendly raw materials for environmental protection and ensuring overall socio-economic development for the locals, they are gradually contributing to building a sustainable environment and society. However, this research has provided some insights into existing challenges that plastic alternative entrepreneurs usually face in operating their businesses. On the contrary, it has shed some light on the future market potential by explaining how the expansion of the ICT and e-commerce sectors is playing a significant role in the growth of the plastic alternative industry in Bangladesh. Despite some limitations (such as relying on a limited number of respondents, heavy reliance on digital/e-tools, concentration on only urban entrepreneurs, lack of adequate past literature, unclear definition of

plastic alternative products, etc.), this study shows the possibility of conducting future research on this ground. First, this study is based on the framework analysis of a few plastic alternative entrepreneurs in some major cities (such as Dhaka, Chattogram, Rajshahi, etc.); therefore, future studies should focus on a larger sample (preferably countrywide) to record the status of existing products and their general impact on GDP. Second, there is a need for an in-depth study that will represent whether the current plastic alternative products generate any type of waste which is not environment-friendly, starting from its production to decomposition. Third, it is important for researchers to develop a framework that would assess whether these plastic alternatives are replacing plastic products and contributing significantly to the reduction of plastic waste. The plastic industry in Bangladesh has come with a lot of potentials and grabbed a large market share with the facilitation of the government, industrialists, and even the customers (Islam, 2012). Now, on the verge of climate change and its adverse effects, it is high time we address the harmful issues associated with plastics. Moreover, since it is already experienced that plastic alternatives are as useful as plastic products, we need to explore and understand this newly growing plastic alternative industry and ensure this industry grows towards achieving a green and sustainable habitat for all of us.

References

Amsen, E. (2020, June 16). *Our relationship with plastics will change – First gradually, then suddenly.* Neste. Available at: https://journeytozerostories.neste.com/plastics/our-relationship-plastics-will-change-first-gradually-then-suddenly#af6bb4bf (26.01.2022).

Bangladesh Bureau of Statistics & Unicef Bangladesh (2019). *Multiple Indicator Cluster Survey 2019.* Available at: https://www.unicef.org/bangladesh/media/3281/file/Bangladesh%202019%20MICS%20Report_English.pdf (27.05.2022).

Begum, F. A. (2020, January 31). *Inclusion of cottage and micro enterprises into SME Policy.* The Financial Express. Available at: https://thefinancialexpress.com.bd/views/inclusion-of-cottage-and-micro-enterprises-into-sme-policy-1580482776 (27.06.2022).

Bhuiyan, M. A. R. (2020, January 30). *Eco-friendly alternatives to plastic bag.* The Daily Sun. Available at: https://www.daily-sun.com/magazine/details/458033/EcoFriendly-Alternatives-To-Plastic-Bag (30.07.2022).

Boran, S., Çavder, A. D., & Barbur, M. C. (2013). Evaluation of bamboo as furniture material and its furniture designs. *Pro Lingo, 9*(4), 811-819.

Brounéus, K. (2010). In-depth interviewing: The process, skill and ethics of interviews in peace research. In Hoglund, K., & Oberg, M. (Eds.), *Understanding peace research methods and challenges*, Routledge, pp. 130-145.

Chalmin, P. (2019). The history of plastics: From the Capitol to the Tarpeian Rock. *The Journal of Field Actions*, Special Issue 19, 6-11.

Chowdhury, A. (2020, December 11). *Digital Bangladesh: What it is and what it isn't.* Dhaka Tribune. Available at: https://archive.dhakatribune.com/opinion/op-ed/2020/12/12/op-ed-digital-bangladesh-what-it-is-and-what-it-isn-t (27. June 2022).

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology, 13*(117), 1-8. https://doi.org/10.1186/1471-2288-13-117

Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. *Science Advances, 3*(7), 1-5. https://doi/10.1126/sciadv.1700782

Gideon, E. (2020, November 24). *Jute: The greenest alternative to plastic bags.* United News of Bangladesh. Available at: https://unb.com.bd/category/Lifestyle/jute-the-greenest-alternative-to-plastic-bags/60974 (27.08.2022).

Hosler, D., Burkett, S. L., & Tarkanian, M. J. (1999). Prehistoric polymers: Rubber processing in ancient Mesoamerica. *Science, 284*(5422), 1988-1991. https:// doi/10.1126/science.284.5422.1988

Hossain, S., Rahman, M. A., Chowdhury, M. A., & Mohonta, S. K. (2021). Plastic pollution in Bangladesh: A review on current status emphasizing the impacts on environment and public health. *Environmental Engineering Research, 26*(6), 1-22. https://doi.org/10.4491/eer.2020.535

Iheukwumere, S. O., Nkwocha, K. F., & Tonnie-Okoye, N. (2019). Stemming plastic bag pollution in Anambra State: Willingness of the public to accept alternative bags. *African Journal of Environmental Research, 2*(1), 17-32.

Islam, M. S., Hasan, M. M., & Hossain, M. M. (2017). Current status of plastic production, prospects and training of manpower in Bangladesh. *Journal of Chemical Engineering, 30*(1), 69-76. https://doi.org/10.3329/jce.v30i1.34801

Islam, M. S. (2012). Prospects and challenges of plastic industries in Bangladesh. *Journal of Chemical Engineering, 26*(1), 16–21. https://doi.org/10.3329/jce.v26i1.10176

Ivlev, V., & Ivleva, M. (2018). Philosophical foundations of the concept of green economy. In Strielkowski, W. (Ed.), *Proceedings of the International Conference on Contemporary Education, Social Sciences and Ecological Studies (CESSES 2018),* Atlantis Press, 869-873.

Jalan, G. (2020, January 22). *Top environmental benefits of paper bags.* Entrepreneur. Available at: https://www.entrepreneur.com/article/345176 (26.01.2022).

Kaul, A. (2021, June 10). *Worldwide plastics production falls in 2020 due to COVID-19: Report.* Republic World. Available at: https://www.republicworld.com/world-news/global-event-news/worldwide-plastics-production-falls-in-2020-due-to-covid-19-report.html (10.06.2022).

Khan, A. (2013, November 21). *Bangladesh – The most climate vulnerable country.* World Bank Blogs. Available at: https://blogs.worldbank.org/endpovertyinsouthasia/bangladesh-most-climate-vulnerable-country (19.07. 2022).

L., C. (2020, July 3). *What is Kraft paper bag, why is it popular?* LinkedIn. Available at: https://www.linkedin.com/pulse/what-kraft-paper-bag-why-popular-cesilia-/ (26.01.2022).

Lacey, H. (2017, September 26). *The history of plastic furniture.* HomeSteady. Available at: https://homesteady.com/facts-6175406-history-plastic-furniture.html (19.05.2022).

Lebreton, L., & Andrady, A. (2019). Future scenarios of global plastic waste generation and disposal. *Palgrave Communication, 5*(6), 1-11. https://doi.org/10.1057/s41599-018-0212-7

Lindwall, C. (2020, January 09). *Single-Use plastics 101.* NRDC. Available at: https://www.nrdc.org/stories/single-use-plastics-101 (21.01.2022).

Loiseau, E., Saikku, L., Antikainen, R., Droste, N., Hansjürgens, B., Pitkänen, K., Leskinen, P., Kuikman, P., & Thomsen, M. (2016). Green economy and related concepts: An overview. *Journal of Cleaner Production,* 139, 361-371. https://doi.org/10.1016/j.jclepro.2016.08.024

Lusher, A., Hollman, P., & Mendoza-Hill, J. (2017). *Microplastics in fisheries and aquaculture: Status of knowledge on their occurrence and implications for aquatic organisms and food safety.* Food and Agriculture Organization. Available at https://www.fao.org/3/I7677E/I7677E.pdf (25.06.2022).

Majumder, T. A., Nur, S. M. S., & Haque, A. (2018). A study on characteristics of small-scale plastic industries in

Dhaka North and South City Corporations. *Journal of Bangladesh Institute of Planners, 11*, 89-105.

McClure, M. (2021, July 22). *Everything you should know about single-use plastic.* Greenpeace. Available at: https://www.greenpeace.org/africa/en/blogs/14052/everything-you-should-know-about single-use-plastic/ (26.01. 2022).

Mimi, N. H. (2011, May 10). *Journey with our crafts.* The Daily Star. Available at: https://archive.thedailystar.net/lifestyle/2011/05/02/page04.htm (27.04.2022).

Mimi, N. H. (2017, April 11). *The story of clay pottery.* The Daily Star. Available at: https://www.thedailystar.net/lifestyle/decor/the-story-clay-pottery-1389253 (26.01.2022).

Mrittika, A. (2021, February 04). *Handmade jewellery: Creative feat of small businesses.* The Daily Star. Available at: https://www.thedailystar.net/shout/news/handmade-jewellery-2038701 (04.02.2022).

Nagalakshmaiah, M., Afrin, S., Malladi, R. P., Elkoun, S., Robert, M., Ansari, M. A., Svedberg, A., & Karim, Z. (2019). Biocomposites: Present trends and challenges for the future. In Koronis, G., & Silva, A. (Ed.), *Green composites for automotive applications*, Woodhead Publishing, 197-215.

Neimark, B., Mahanty, S., Dressler, W., & Hicks, C. (2020). Not just participation: The rise of the eco-precariat in the green economy. *Antipode, Vol. 25*(02), 496-521. https://doi.org/10.1111/anti.12593

Özel, Y., & Ürük, Z. F. (2019). Use of plastic materials in furniture design and production. *International Journal of Advanced Research and Review, 4*(1), 1-13.

Pilkington, B. (2021, November 22). *Plastic alternatives: Where are we now?* AZO Materials. Available at: https://www.azom.com/article.aspx?ArticleID=20994 (29.07.2022).

Palys, T. (2008). Purposive sampling. In Given, L. M. (Ed.), *The Sage Encyclopedia of Qualitative Research Methods* (Vol. 2), Sage, pp. 697-698.

Ramsden, K. (2020, March 30). *Single-use plastic & alternatives.* PSCI. Available at: https://psci.princeton.edu/tips/2020/3/30/single-use-plastic-amp-alternatives (25.01.2022).

Rhodes, C. J. (2018). Plastic pollution and potential solutions. *Science Progress, 101*(3), 207–260. https://doi.org/10.3184/003685018X15294876706211

Saif, S. (2021, June 21). *Plastic is not fantastic.* Dhaka Tribune. Available at: https://archive.dhakatribune.com/opinion/op-ed/2021/06/22/op-ed-plastic-is-not-fantastic (26.06.2022).

Sastre, R. M., de Paula, I. C., & Echeveste, M. E. S. (2022). A systematic literature review on packaging sustainability: Contents, opportunities, and guidelines. *Sustainability, 14*(11). https://doi.org/10.3390/su14116727

Shanmugam, V., Das, O., Neisiany, R. E., Babu, K., Singh, S., Hedenqvist, M. S., Berto, F., & Ramakrishna, S. (2020). Polymer recycling in additive manufacturing: An opportunity for the circular economy. *Materials Circular Economy, 2*(11), 1-11. https://doi.org/10.1007/s42824-020-00012-0

Shimo, M. H. U. (2014). *Plastic recycling in Bangladesh, what needs to be done?* Arcada – University of Applied Sciences. Available at: https://www.theseus.fi/bitstream/handle/10024/87021/Plastic%20Recycling%20Thesis.pdf?sequence=1 (05.07.2022).

Showrav, D. G. Y., Hassan, M. A., Anam, S., & Chakrabarty, A. K. (2021). Factors influencing the rapid growth of online shopping during Covid-19 pandemic time in Dhaka city, Bangladesh. *Academy of Strategic and Management Journal, 20*(2/Special), 1-13.

Singh, D. R. (2020). Waste plastic and R.C.A - The only raw materials for plastic tiles and blocks. *Research Explorer, VIII*(26), 29-35.

Stratton, S. J. (2021). Population research: Convenience sampling strategies. *Prehospital and Disaster Medicine, 36*(4), 373-374. https://doi.org/10.1017/S1049023X21000649

Tasneem, S., & Biswas, M. R. (2014). Role of cottage industry in the economic development of Bangladesh: An empirical study. *IOSR Journal of Business and Management, 16*(10), 10-18.

Tembon, M. (2021, June 05). *Tackling plastic pollution for green growth in Bangladesh.* World Bank Blogs. Available at: https://blogs.worldbank.org/endpovertyinsouthasia/tackling-plastic-pollution-green-growth-bangladesh (31.01. 2022).

The Business Times (2019, July 24). *Bangladesh invents plastic alternative from jute.* Available at: https://www.businesstimes.com.sg/life-culture/bangladesh-invents-plastic-alternative-from-jute (24.07.2022).

Tsakona, M., & Rucevska, I. (2020). *Baseline report on plastic waste and the stocktaking of initiatives on plastic waste* (UNEP/CHW/PWPWG.1/INF/4). United Nations Environment Programme. Available at: https://gridarendal-website-live.s3.amazonaws.com/production/documents/:s_document/554/original/UNEP-CHW-PWPWG.1-INF-4.English.pdf?1594295332 (19.05.2022).

UNB (2020). 54% Bangladeshi rural households lack internet access: Survey. The Daily Star. Available at: https://www.thedailystar.net/country/news/54-bangladeshi-rural-households-lack-internet-access-survey-1960661 (08.06.2022).

UNEP (2018). Single-use plastics: A roadmap for sustainability. United Nations Environment Programme. Available at: https://www.unep.org/resources/report/single-use-plastics-roadmap-sustainability (29.07.2022).

United News of Bangladesh (2021, September 24). Bangladesh's burden of plastic waste. Available at: https://www.unb.com.bd/category/bangladesh/bangladeshs-burden-of-plastic-waste/79401#:~:text=The%20country%20produces%20around%2087%2C000,Environment%20and%20Social%20Development%20Organisation (22.05.2022).

Wiafe, E. D., Amoah, M., & Bih, F. (2014). Determinants of choice of cane furniture as household commodity among the elites. *International Journal of Ecological Economics & Statistics, 34*(3), 83-92.

Wong, J. (2011, May 05). *Plastic bags and a look at alternatives.* The University of British Columbia. Available at: https://open.library.ubc.ca/media/download/pdf/52966/1.0103528 (27.08.2022).

WWF-Australia (2022, July 06). 10 worst single-use plastics and eco-friendly alternatives. Available at: https://www.wwf.org.au/news/blogs/10-worst-single-use-plastics-and-eco-friendly-alternatives (25.01.2022).

Young, T. J. (2015). Questionnaires and surveys. In Hua, Z. (Ed.), *Research methods in intercultural communication: A practical guide,* John Wiley & Sons Inc, 163-180.