

# The Role of Sustainable Packaging Design for West Java Local Products

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**Keywords:** Local Products, Msme, Packaging Design, Sustainability.

**Abstract:** Sustainability should become a concern in creative industries, including local food industries. Local food as souvenirs from a specific area commonly produced from the natural resources combined with their local culture, which directly affect their economy. To attract consumers and compete with other modern substitute products then this local product arguably able to stand out by defining its unique features of the local culture ingenuity. Local indigenous as the core of the unique character of local food products in this research will be presented in packaging through sustainable aspects of Micro, Small, and Medium Enterprises (MSME) in Indonesia. This experiment used two-sample of local food that represents authentic snacks from West Java: Brondong and Wajit. Each snack is packaged into four types of packaging, which contain two contradictory variables: traditional look-modern look and reusable-single use packaging. The non-parametric Mann-Whitney U-test, Kruskal Wallis test and descriptive statistics were used to analyses respondent's specific souvenir food packaging preferences. A more detailed discussion explained the variables studied using the ATUMICS theory, which divides macro and micro design elements. The research output revealed that most consumers prefer traditional packaging combined with plastic, although it will have a higher price than single-use cheaper packaging.

## 1 INTRODUCTION

Traditional local products made by a community respond to the environment, interact with nature, and adapt the community to everything in its surroundings. The activities and the artifacts produce as an identity for the local community become a characteristic of their culture (Jung & Walker, 2018; Zhang, 2021). The practice of traditional manufacturing practice is an important element of cultural heritage (*Basic Texts of the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage*, 2018) thus, greater efforts are needed to maintain and make it sustain (Zhang, 2021).

Traditional food made using specific ingredients and processing methods commonly found in local communities. Foods as the tangible results reflect the availability of raw materials found in the surroundings, possibly produce the unique method, and pass the local communities' taste approval. Therefore, once these traditional foods sell as

souvenirs, local communities' pride concern represents in these products. Moreover, re-package the local foods as souvenirs arguably empower local people in terms of economic value as this activity acts as an income generator, thus alleviating poverty (Vencatachellum, 2019). Nevertheless, souvenir packaging needs to have a local identity distinguished from other products, competing with other substitute modern products besides only fulfilling primary safety purposes. In broader terms, the packaging of souvenirs can support creative industry correlated with the country's economy.

Attractive packaging is an initial approach to get consumer attention. The most attractive packaging enables increasing the product's appeal, thus increasing consumer's buying intention (Mai & Nguyen, 2018). Thus, the packaging is no longer used only to wrap a product and protect it from damage as safety measures and increase the potential product sales in the market (Hamdar, Khalil, Bissani, & Kalaydjian, 2018). Specific in souvenir context,

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attractive sight can be shown through the local identity. Packaging design can act as media to promote cultural identity. However, the promotional tool is one of many roles that packaging design can contribute—in broader terms, packaging can act as a communication tools to effectively inform the richness of national identity (Min, Idris, & Yusoff, 2018).

Nevertheless, local identity is not enough. It is necessary to think about the sustainability of the local product itself. A previous study conducted by Mohede, Tumbuan, and Tielung (2018) related to coffee packaging revealed that packaging functional aspects, free sample/ bonus, sustainability factors, and semi-disposable packaging also influence the buying intention alongside the aesthetic aspects.

An attractive packaging design, local identity, and also environmentally friendly are essential elements that need to be considered in local marketing products. A good packaging design is made based not only on economic motivation but also on other motivations such as social, cultural, and environmental, which all work together to support local products' sustainability.

The importance of packaging also increases with the opportunity to change the traditional marketplace into a virtual space enabled by an online shopping support system. With the help of virtual marketplace distance barriers being eliminated, head-to-head competition based on 'online display' will become the only way to interact with potential customers.

Previous studies revealed that traditional food producers still prioritize economic motivation only in packaging their products. To attract consumers and compete globally, these local products need to be well packaged, attractive and represent cultural identity. In previous studies, the research team has obtained opinions from producers regarding the above matters (Hartanti, Nurviana, & Lukman, 2018).

This present study aims to analyze the sustainability aspects of MSME products on the packaging design side, characterized by culture in souvenir food products from the potential consumer.

## 2 METHODS (AND MATERIALS)

### 2.1 ATUMICS: Method of Transforming Traditions

This research follows Nugraha's ATUMIC (2012) approach suited to transform culture into a modern product. The word 'transformation' comes from a process of reshaping, modifying, or converting in a

variety of manifestations. This method views an artifact, object, or product as having two main levels of existence: micro and macro level. The micro-level consists of anything tangible in the products, and the construct contains (1) Technique (production techniques, technology, skills, tools); (2) Utility (functionality, usability, demand, needs); (3) Material (natural ingredients, synthetic materials, smart materials); (4) Icon (image, ornamentation, color, graphics); (5) Concept (customs, beliefs, norms, values); and (6) Shape (shape, structure, size, gestalt). Macro-Level perceived the artifact as a consequence and motivated by the cultural, social, economic, ecology, self-expression, and survival aspects connected. The ATUMICS model structure consists of six essential elements and six motivation aspects provided in Figure 1.

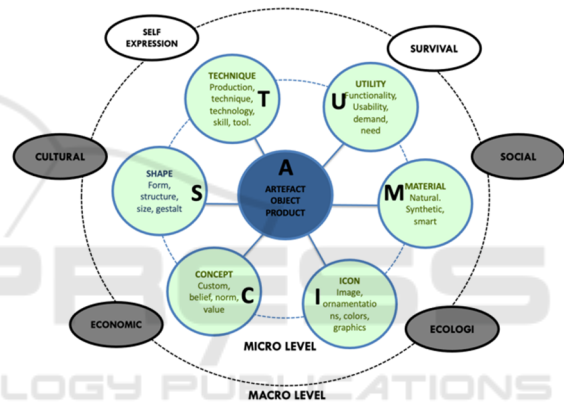


Figure 1: ATUMICS Model (Nugraha, 2012).

From the inventor of the ATUMICS model, it is said that sustainability is supported by Cultural, Economic, Social, and Ecology motivation aspects. In this study, four mentioned aspects will be implemented to describe the related constructed elements for experimenting with local food packaging. In general, sustainability defines as the state of maintained condition at a specific rate or level. Thus, if sustainability correlates with MSME industries, in this case, refer to the state of continuity of this industry as one way to preserve local people's values.

Economic motivation is the first aspect to support the sustain condition as it is arguably directly related to the quality of life propagated by the capability to provide basic needs to make life survive. Although very powerful, the economy cannot be the only motivation to produce products. In principle, economic motivation must be balanced with other motives such as culture, social, or ecological to create an optimal balance. In individual artisans and

designers, the economy is primarily meant to make a living by producing and selling products. The economic issue always has a linear relationship with income for the MSME industry; therefore, local products' revitalization directly contributes to the specific community's economic sustainability.

Social motivation refers to interaction between individuals and society. Consideration of social aspects becomes an advantage because of the implication of social lives. Social motivation aims to increase social interaction and collaboration in supporting society sustainability, involving local indigenous and creativity.

Culture is vital and becomes the main motivation for various art creations, crafts, and design objects, ranging from jewelry, eating utensils, and furniture to buildings. Within the development complex, new systems and new artifacts can effectively maintain society if they can adjust to local customs, spirit, norms, and culture. The strange objects might bring resistance from local communities once the traditional context was discussed.

Ecology motivation refers to the utilization of existing resources without reducing the quality. Almost every activity requires ecology motivation. At the same time, the biggest challenge is creating healthy ecological products without sacrificing profits and economic value.

## 2.2 Method

### 2.1.1 Experimental Design

This study used two sets of a two (traditional vs. modern insight) x two (re-usable vs. single-use packaging) between-subjects experimental design using an online survey to examine the preferred packaging that leads their buying intention with additional price and net weight of the products.

There are two types of products used in this study: wait and brondong. Wajit is a confectionary type of snack made of sticky rice, brown sugar, and coconut milk. The uniqueness of this sweet product is the way corn leaves wrap it in a diamond-shape. Brondong is a traditional snack similar to modern popcorn, made of corn or rice but added with a traditional flavor of brown or white sugar and rolled or shaped into ball shaped. The diameters of brondong are varied, from more or less three centimeters to more than 20 centimeters. Brondong is less crispy and does not use butter as popcorn does. In this experiment, wajit represents the authentic local product which does not found outside West Java, while Brondong represents

the modified local product which internationalizes as popcorn.

The manipulation of this experiment using four visuals of each packaging as provided in Figures 2 and 3.



Figure 2: Wajit Packaging.

Each packaging was equipped with fictional (1) brand (*Palem*, in Sundanese language, means equivalent to tasty, tasteful, or palatable); (2) halal logos; and (3) iconic figure (*Cepot* from Sundanese ethnic) as presented in Figure 4.

Packaging number one to four represents single-use and modern look; Re-useable packaging and modern look; Traditional look and single-use; and Traditional look and re-usable packaging, respectively.

To specify the information gathered, there are specified information gathered in data collection as follows: sex, age, origin, domicile, and education level. This information then divides the group of participants to (1) domicile: West Java vs. Not West Java; (2) origin: West Java ethnicities vs. Not West Java Ethnicities; (3) Preferred product: Wajit vs.

Brondong; (4) Preferred Packaging I: 4 Type of Packaging; (5) Preferred Packaging II: Traditional Look vs. Modern Look; (6) Preferred Packaging III: Re-usable vs. single-use packaging.



Figure 3: Brondong Packaging.

### 2.1.2 Sample and Procedures

The participants used convenience, snowballs, and purposively selected to join this study in cross-sectional data collection method from January – March 2021 with inclusion criteria of Indonesian adults and interested in buying local food as souvenirs mementos of their traveling experience. Both of the aspects will define as the potential consumer and make them eligible to become respondents. Respondents will be dropped out if they do not consider local food as souvenirs. The second screening is their wajit or brondong as their preferred products to be picked as the better souvenir. Selection of wajit or brondong, will lead them to different but parallel packaging design features.

Due to this study's unknown population, we follow the suggestion for minimum samples of 385 people with significant alpha 0.05, confidence level 95%, Margin of Error 5%, and Population Proportion selected as 50% (LLC, 2008-2021; Smith).

The mean range was 3.68 – 4.81, and the range of Standard Deviation was 0.0568 – 1.118 from a 5-point Likert scale. Therefore, we get the result of 385 as the minimum sampling size needed in this study.



Figure 4: Fictional brand, halal logos and iconic figure use in product manipulation.

### 2.1.3 Selected Elements based on ATUMICS Theory

In the questionnaire, this study directly asking eleven preferred elements based on ATUMICS theory, as provided in Table 1.

Table 1: Selected preferred elements for packaging.

Descriptive Statistics	Micro/Macro
Food safety inside packaging (utility)	Mi
Mandatory etiquette for packaging (BPPOM, halal certificate, exp. date, nutrition facts, etc) (utility)	Mi
Value for price (concept)	Mi
Packaging material (material)	Mi/Ma
Popularity of the food (Icon)	Mi
Packaging size and shape (shape)	Mi
Authenticity impression of packaging material (material)	Mi
Persuasive statement in the packaging (concept)	Mi
Packaging colour (Icon)	Mi
Cultural icon in the packaging (icon)	Mi
Re-usable packaging	Ma

\*Micro = Mi; Macro = Ma

Selected preferred elements then offered as main questions to the participants with the answers to the importance: 1-for not at all important to 5-very important. The reliability of all 11 items is 0.802 using Cronbach’s alpha for 398 participants.

### 3 RESULTS AND DISCUSSION

This study's total of participants is 398 participants with an age range between 17 to 67 years old. Participants consisted of 122 and 276 male and female participants, respectively, with their education level varied from elementary school to doctoral degree for 1, 50, 31, 207, 89, and 20 people, respectively. There were 262 participants who originated from West Java. However, there were only 289 participants resides in West Java. Interestingly, among the two type of food proposed, wajit is selected by the majority (253 participants), while brondong is only preferred by 145 participants. This is interesting because the preferences of wajit is selected by across the domicile and origin of the participants.

In order to understand the more specific answers based on each group clustering and due to not normally distributed data, we use non-parametric Mann Whitney U-test to contradict two group (e.g., domicile, origin, preference of packaging re-usability, and modern-traditional look of the packaging), non-parametric Kruskal Wallis to compare of group consist more than two groups (e.g: preference provided packaging), and descriptive statistics. All of the statistical test was conducted in between subject test, with the following results:

Based on their domicile group, there are significant differences for 'persuasive statement in the packaging' (0.016), food safety inside packaging (0.043); and 'packaging color' (0.024) see —Table 2.

Table 2: Between group comparison: Domicile.

Domicile Group (N)	'statement'	'food safety'	'packaging color'
West Java (262)	<b>Mean 3.99</b> <b>SD 1.038</b>	Mean 4.79 SD 0.597	<b>Mean 3.96</b> <b>SD 0.936</b>
Not West Java (136)	Mean 3.91 SD 1.071	<b>Mean 4.85</b> <b>SD 0.510</b>	Mean 3.88 SD 0.997

Based on four type of packaging offered, there are significant differences between four group for 'Re-usable packaging' (0.00); 'Authenticity impression of packaging material' (0.014) and 'Cultural icon in the packaging' (0.14), see Table 4.

Table 3: Between group comparison: Packaging Type.

Packaging Type (N)	'statement'	'food safety'	'packaging color'
Packaging 1 (51)	Mean 3.10 SD 1.188	Mean 3.73 SD 0.918	Mean 3.82 SD 1.126
Packaging 2 (126)	Mean 3.93 SD 1.044	Mean 3.95 SD 0.893	Mean 3.80 SD 0.886
Packaging 3 (109)	Mean 3.41 SD 1.172	Mean 4.06 SD 0.921	Mean 4.13 SD 0.935
Packaging 4 (112)	Mean 3.93 SD 0.956	Mean 4.04 SD 0.766	Mean 3.75 SD 1.181

Based on modern or traditional packaging look, there are significant differences between two groups for 'Authenticity impression' (0.006) and 'Cultural icon in the packaging' (0.45), see—Table 4.

There is no significantly different answer from the two groups of origin, the participants, and the preferred product (wajit vs. brondong). However, significant differences do not perceived as important as the other elements, as the rank of importance from 11 elements is provided in Table 5.

Table 4: Between group comparison: Modern vs Traditional Packaging Look.

Packaging Look (N)	'statement'	'food safety'
Modern look (177)	Mean 3.89 SD 0.904	Mean 3.81 SD 0.958
Traditional look(221)	Mean 4.12 SD 0.847	Mean 3.98 SD 0.988

Table 5: Rank of Importance elements in packaging.

Descriptive Statistics	Mean	Std. Deviation	Rank
	Food safety inside packaging (utility)	4.81	0.568
Mandatory etiquette for packaging (BPPOM, halal certificate, exp.date, nutrition facts, etc) (utility)	4.56	0.819	II
Value for price (concept)	4.5	0.747	III
Packaging material (material)	4.47	0.729	IV
Popularity of the food (Icon)	4.25	0.848	V
Packaging size and shape (shape)	4.24	0.828	VI
Authenticity impression of packaging material (material)	4.02	0.879	VII
Persuasive statement in the packaging (concept)	3.96	1.048	VIII
Packaging colour (Icon)	3.93	0.956	IX
Cultural icon in the packaging (icon)	3.9	0.977	X
Re-usable packaging	3.68	1.118	XI

The experiment showed that economic motivation, social, culture, and ecology as four factors in ATUMICS influenced traditional packaging's sustainability and consistently affected the buying intention. This argument is supported by the fact that authentic foods gain more attention to be preferred as souvenirs by potential Indonesian consumers. Thus, cultural motivation consistently appears to construct the cultural value itself.

Traditional wajit proved as the preferable product if compare with the brondong which has the modernization. Based on these findings, it is proven that ecology motivation is influencing the sustainable role. Traditional ecology quality appears in the product arguably represented by the corn leaves wrap in a diamond shape for wajit, authentic brown sugar taste in both of the products, and also the participants prefer 'traditional look' of bamboo weaving. Local community as the producer of the local product has direct implication to the sustainability, with their knowledge to produce 'decent' product based on their expertise will correlate with the tourism attraction in the form of natural, homemade, handmade, with traditional association of the place they are purchased (Rolle & Enriquez, 2017). Tourists will buy the food to learn the taste and imagine the local identity of the area. Therefore, authentic local food needs to be maintained, directly impacting local farmers, tourism industries and integrating the whole economy into the surroundings.

The majority of the participants also preferred Re-useable packaging in terms of sustainability. However, the level of importance is the lowest than any other element mentions in this study.

Considering that each of the experiments shows the net weight, price, and re-use value, it can be concluded that souvenirs in terms of local food are price sensitive. However, discussing the 'fair price' does not mean that the price should be the lowest. Tourists tend to get a positive response for a lower price; however, positive emotion also motivates them to experience so-called happiness (Rousta & Jamshidi, 2019).

As principal utilities of the packaging, Indonesian participants still take the safety measure for the 'physical condition' and 'food safety' most important within the context of souvenirs. This makes sense because the 'souvenir' will travel along with them back home with all of the risk and consequences of traveling (e.g., baggage for air flight), therefore easy to carry, lightweight, compact, extra service for special package and aesthetic appealing also became further consideration, as this souvenir most likely will

become a gift for others (Horodyski, Manosso, Bizinelli, & Gândara, 2014).

The preferred 'traditional look' does not have to be using natural materials, as it can be replaced with iconic local features.

This study discusses the potential domestic tourist's perspectives on the case of local food serve as souvenirs. Further study might expand with the other type of MSME products, or with potential international tourists as preference might be influenced by cultural issues and personal taste.

## 4 CONCLUSIONS

Sustainability in local food industries means considering social, ecological, and economic sectors. As the vantage point, local cultural identity needs to be 'translated into the packaging's understandable appearance. Authenticity will be more valuable and affect sustainability for other fields. This research's main output is the understanding that domestic tourist prefers authentic food as souvenirs even though they never taste it before. In this study, all of the respondents are Indonesian participants. Therefore, we argue that they will be able to imagine the unique taste of this product. Especially the usage of brown sugar or palm sugar as one of the popular ingredients based on coconut or nira sap commonly found in Indonesia and the unique way of wrapping up wait using corn leaves in a diamond shape. Arguably, the uniqueness of the shape gives an exotic that causes a positive response to consumers to choose it. The food's unique shape also contributes to creating an attractive visual when packaged using only translucent materials.

Even though price still one of their concern while choosing souvenirs, they are not solely based on the lowest price but also motivated by the culture visualized through the packaging. Sustainability is about our responsibilities for future generations. Sustainability refers to a state of continuity and sustainable development that maintains sustainability in respecting human civilization.

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