

Research on Fruit Gift Packaging Based on the Thought of “Fine Materials and Exquisite Craftsmanship”

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Received: 8 March 2026; Accepted: 22 March 2026; Published: 29 April 2026

Abstract:

This study takes the thought of “Fine Materials and Exquisite Craftsmanship” as the core to explore its application in fruit gift packaging in depth. Firstly, it expounds the connotation of this thought and its practical significance in modern design, and analyzes the current situation of fruit gift packaging regarding over-packaging, the environmental impact of materials, and contradictions between design and function. Furthermore, based on the thought, it puts forward improvement ideas from multiple aspects including the selection and innovation of packaging materials (adapting to fruit characteristics, environmental sustainability and innovation strategies), the improvement and optimization of process technology (application of automation technology, innovative processes), and the innovation and practice of design concepts (modeling and structural design). The research aims to provide theoretical and practical references for the sustainable development of fruit gift packaging and realize the practicality, aesthetics and environmental protection of packaging..

Keywords:

Exquisite Materials and Craftsmanship, Fruit Gift Packaging, Materials, Design

1. Introduction

1.1. Overview of the Thought of "Fine Materials and Exquisite Craftsmanship"

“Fine Materials and Exquisite Craftsmanship” is an important design thought in traditional Chinese culture, first recorded in Kaogongji of The Rites of Zhou. The core of this thought emphasizes the harmonious unity of four elements: the right time, favorable geographical conditions, fine materials and exquisite craftsmanship, so as to create high-quality craft products. “Fine materials” means that the materials themselves possess beauty of texture, quality and performance, and such beauty can only be displayed through craftsmanship, with materials serving as the material foundation for the expression of process technology. It requires people to select and utilize materials according to their own needs and aesthetic tastes. “Exquisite craftsmanship” refers to the ingenious application of techniques; only by mastering and applying process technology proficiently can materials be processed into practical and beautiful objects.

This design concept not only highlights the key role of materials and technology, but also integrates the philosophical wisdom of harmonious coexistence with nature. That is, in the process of design and creation, people should comply with the laws of nature and make use of natural conditions to achieve the realm of “the unity of man and nature”. This thought still has important guiding significance for modern design, reminding designers to comprehensively consider natural conditions, material characteristics, technical processes and other factors in the creation process, so as to realize the harmonious unity of design with the environment, materials and technology.

1.2. Practice of the Thought in Design

In modern design, the thought of “Fine Materials and Exquisite Craftsmanship” is widely applied in various fields such as product design, book design, architectural design and industrial design, which emphasizes the scientific understanding and utilization of materials as well as exquisite process technology. This design thought not only played an important guiding role in ancient times, but also has important practical significance and guiding value in modern design.

In the current consumer market, gift-giving, as an important way of emotional communication and social interaction, has a continuously growing and increasingly diversified demand. Fruits, rich in nutrition and natural and healthy, have become one of the most favored gift choices. However, with the improvement of consumers’ aesthetic level and the requirements for environmental protection, the current fruit gift packaging can hardly meet the current needs in terms of form and connotation. The thought of “Fine Materials and Exquisite Craftsmanship” contains a profound pursuit of the perfect integration of material texture, craft skills and design aesthetics, providing a profound theoretical source for modern packaging design. Applying this thought to the research on fruit gift packaging helps break the limitations of existing packaging. Starting from the careful selection of materials, ingenious application of craftsmanship and exquisite design of modeling and decoration, it creates fruit gift packaging that is both practical and artistically appealing.

2. Current Research Status

2.1. Research on the Current Status of “Fine Materials and Exquisite Craftsmanship” in Kaogongji

Through the analysis of existing literatures, it is found that most studies on the thought of “Fine Materials and Exquisite Craftsmanship” in Kaogongji focus on its ideological connotation and practical significance.

In terms of ideological connotation, Li Yanzu [1] pointed out in his analysis of “Fine Materials and Exquisite Craftsmanship” in Kaogongji that this thought reflects people’s understanding of nature and the dialectical thinking of the relationship between man-made objects and nature at that time. It is an important thought and basic principle for design and creation, reflecting the respect for the laws of nature.

Tian Weiling [2] believed that “Fine Materials and Exquisite Craftsmanship” summarizes the laws and principles of ancient creation activities and embodies the unity of subjectivity and objectivity. The creative combination of the four factors of the right time, favorable geographical conditions, fine materials and exquisite craftsmanship reflects the unity of production technology and formal beauty to a

certain extent, and has scientificity at the philosophical level. The creation thought of “Fine Materials and Exquisite Craftsmanship” has certain guiding significance for the relationship between the function and form of articles, and this creation thought embodies the unity of artistry, technology and scientificity in modern society.

2.2. Research Status of Fruit Gift Packaging

Relevant studies on fruit gift packaging analyze its current situation and shortcomings, and put forward suggestions on how to innovate fruit gift packaging in terms of materials and functions.

2.2.1. Research on fruit packaging

i. Packaging materials

Huang Jiali summarized in *Research Progress of Fruit and Vegetable Packaging* [3] that with the improvement of consumers’ requirements for the quality and preservation period of fruits and vegetables, as well as the enhancement of environmental awareness, functionalization, environmental protection and simplification have gradually become the mainstream trends of fresh-keeping packaging for fruits and vegetables.

ii. Deficiencies and improvements of packaging

After sorting out the relevant literatures on fruit packaging, it is found that in recent years, studies on fruit packaging have mainly focused on packaging materials, packaging defects and future development trends.

Li Li et al. analyzed the existing problems of fruit packaging in China in the article *Current Situation and Enlightenment of Fruit Packaging in China* [4], such as weak awareness of fresh-keeping and environmental protection, lack of effective fresh-keeping measures in packaging, which seriously affects fruit quality. Although there are many types of fruit packaging materials in China, some are simple in workmanship and poor in quality, and the waste materials are easy to cause environmental pollution and difficult to degrade or recycle. Fruits are prone to mechanical damage in the logistics link, while the existing packaging is insufficient in reducing damage, maintaining fruit quality and lowering loss, which requires further improvement of packaging structure and material performance.

Yi Fan [5] pointed out in previous studies that with the further improvement of the market economic system, various fruit packaging has been further improved. However, most fruit packaging still uses plastic bags and cartons, which lack characteristics and innovation and can no longer adapt to the needs of market development.

2.2.2. Research on fruit gift packaging

Liu Wenliang discussed the current situation and design trends of fruit gift packaging as well as the ecological and safety considerations of its design in the article *Rethinking the Design of Fruit Gift Packaging in the New Period* [6]. He believed that while fruits are highly favored, they also face an awkward situation—the lack of scientific and reasonable gift packaging. How to innovate the design of fruit gift packaging has become a new topic worthy of in-depth discussion.

2.3. Research on “Fine Materials and Exquisite Craftsmanship” in Fruit Gift Packaging

2.3.1. Relevant research on the thought in modern design

Scholars have conducted research on the thought of “Fine Materials and Exquisite Craftsmanship” from various angles, not only in-depth analyzing its connotation, but also actively exploring its value to modern design and its connection with other design thoughts. This provides a rich theoretical basis for the inheritance and development of this traditional design thought and offers useful enlightenment for modern design practice.

Xu Xiaoyan put forward in *Fine Materials and Exquisite Craftsmanship: Modern Enlightenment of the Creation Thought in Kaogongji* [7] that although the “right time and favorable geographical conditions” are no longer decisive factors in modern design, the thought of scientific and rational selection and utilization of materials advocated by “Fine Materials and Exquisite Craftsmanship” still shines with wisdom. Designers still need to understand material properties according to actual needs, select appropriate materials, and give play to the technological characteristics of materials to make up for deficiencies.

Wang Junjun emphasized in *A Brief Analysis of the Influence of the Thought of “Fine Materials” and “Exquisite Craftsmanship” in Kaogongji on Modern Design* [8] that the thought of “Fine Materials and Exquisite Craftsmanship” requires modern design to pay attention to the unity of artistry, technology and scientificity, avoid one-sided pursuit of form or function, help improve the design level, and urge designers to pay attention to the integration of art and technology.

2.3.2. Relevant research on the thought in modern packaging

From relevant studies, it can be summarized that the design thought of “Fine Materials and Exquisite Craftsmanship” plays an important role in exploring the cultural value and aesthetic trend of modern packaging design, developing packaging design thinking and studying the application of traditional cultural elements in packaging design.

Yuan Rong [9] believed that “Fine Materials and Exquisite Craftsmanship” emphasizes the importance of exquisite craftsmanship and materials for making utensils, and this principle is applicable to modern packaging design and other fields. It embodies the unity of form and function; modern packaging design should pay attention to “form follows function”, design various forms according to functions, meet aesthetic needs, and realize the coordinated unity of function, decoration and form.

2.3.3. Relevant research on the thought in fruit gift packaging

At present, in the academic field, there is no research linking the design thought of “Fine Materials and Exquisite Craftsmanship” with the field of fruit gift packaging, and the relevant data is blank. The thought of “Fine Materials and Exquisite Craftsmanship” has various enlightenments for fruit packaging design, which remains to be studied. This paper will analyze from three aspects of over-packaging, environmental impact and contradictions between design and function of fruit gift packaging, and provide new ideas for the material innovation, process improvement and design concept innovation of fruit gift packaging, so as to promote the

development of fruit gift packaging design in terms of practicality, aesthetics, environmental protection and other aspects and adapt to the needs of the modern market.

3. Analysis of the Current Situation of Fruit Gift Packaging

3.1. Analysis of Over-packaging Phenomenon

Studies have shown that packaging waste accounts for about 30%~40% of urban domestic waste in China, and most of this packaging waste is generated by over-packaging. The *New National Standard for “Over-packaging” Announced [10]* mentions that food such as grain and its processed products should not have more than 3 layers of packaging, and other food and cosmetics should not have more than 4 layers of packaging. However, in real life, the packaging of fruit gifts often exceeds the specified number of layers. In order to improve the grade of fruit gifts, merchants often choose a variety of packaging materials and methods. For example, in some fruit gift boxes, fruits are not only wrapped with plastic wrap, but also put into plastic boxes, covered with plastic bags outside, and even have exquisite gift box outer packaging. These packaging materials not only have high costs, but also cause waste in resource utilization.

Of course, there are positive examples of rejecting over-packaging on the market, such as Fenghua honey peaches packed in bamboo baskets. This kind of packaging not only highlights local characteristics, but also keeps fruits fresh in a breathable environment, and the bamboo baskets can be used as household storage supplies later, extending the service cycle of the packaging. This shows that in the field of fruit gift packaging, it is not necessary to adopt “repetitive” packaging to achieve good results.

Exploring the reasons for over-packaging, on the one hand, merchants try to obtain higher profits by virtue of visually striking packaging design. On the other hand, consumers are often constrained by the invisible face culture when purchasing fruit gifts. A luxuriously and imposingly packaged fruit gift box can show one's sincerity and respect, and sending such a gift can be regarded as “presentable”.

3.2. Environmental Impact of Manufacturing Materials

With the increasing awareness of environmental protection among people, it is urgent to deeply explore the environmental problems caused by the manufacturing materials of fruit gift packaging, which is not only related to the maintenance of ecological balance, but also closely linked to the sustainable development of the fruit industry.

A large number of fruit gift boxes adopt paper packaging, whose raw material—paper—is mainly derived from trees. Although paper materials have the advantage of degradability, the production process of such materials requires felling a large number of trees, which puts pressure on forest resources, leading to the reduction of biodiversity, soil erosion and other problems. In addition, the production of virgin wood pulp paper consumes a lot of energy and water resources, and discharges a certain amount of wastewater and waste gas, causing environmental pollution.

Common plastic packaging materials such as polyethylene (PE), polypropylene (PP) and polyvinyl chloride (PVC) degrade extremely slowly in the natural environment. A large number of discarded fruit plastic packages, when discarded, pile up in landfills

for a long time or scatter in the natural environment, occupying a lot of land resources and continuously polluting soil and water bodies [11].

With the improvement of people's awareness of environmental protection, sustainable development has become an important trend in the design of fruit gift packaging. Sustainable development requires packaging design to adopt environmental protection materials, reduce packaging waste, improve the recyclability and degradability of packaging, etc. This may have a certain contradiction with the traditional pursuit of aesthetics [12].

3.3. Contradictions between Design and Function

In the field of fruit gift packaging, the contradiction between design and function is like an irreconcilable game. From the perspective of design aesthetics, merchants rack their brains to endow packaging with unique charm through complex and novel structural design, striving to catch consumers' eyes visually in an instant. However, when we switch to the functional perspective, we will find that behind these seemingly exquisite designs, there are many inconveniences. The contradiction between design and function in fruit gift packaging is a complex problem that needs to be discussed from multiple aspects.

3.3.1. Modeling design

In the design of fruit gift packaging, modeling design usually focuses on aesthetics and uniqueness to attract consumers' attention. Designers will try various novel shapes and structures to make the packaging more visually attractive [13]. However, overly complex or peculiar modeling may affect the protective function of the packaging. For example, some special-shaped packaging, although novel in appearance, may not provide sufficient buffering and support for fruits, leading to easy damage of fruits during transportation and storage. Appropriate size design is crucial for fruit gift packaging. On the one hand, the packaging size needs to match the size of fruits to ensure that fruits do not shake in the packaging and reduce the risk of collision and damage. On the other hand, consumers often hope that the packaging size is moderate, which is convenient to carry and not too bulky. But in actual design, it is difficult to meet both requirements at the same time.

3.3.2. Structural design

In order to increase the aesthetics and creativity of packaging, some fruit gift packaging adopts complex structural design. However, such complex structures may bring problems of difficult opening to consumers, and consume more materials in the production process, causing resource waste. In fruit gift packaging, in order to ensure the structural stability of the packaging, it is often necessary to use some relatively strong materials, but these materials are often accompanied by negative impacts such as difficulty in degradation.

4. Reflections on Fruit Gift Packaging Based on the Thought of "Fine Materials and Exquisite Craftsmanship"

4.1. Selection and Innovation of Packaging Materials

4.1.1. Principles of material selection

i. Adapting to fruit characteristics

Practicing the thought of “Fine Materials and Exquisite Craftsmanship” in the field of fruit gift packaging and rationally selecting and innovating packaging materials is the only way to meet market demand and promote the sustainable development of the industry. By accurately grasping fruit characteristics, implementing the concept of environmental protection and carrying out technological innovation, we can create fruit gift packaging that is both practical and beautiful with unique charm.

Select appropriate packaging according to factors such as the respiratory intensity required for fruit transportation or preservation, the hardness of fruit peel and water content. For fruits with hard peels, such as common fruits like apples and pears, their peels have a certain toughness and a long storage period. Therefore, simplicity and practicality are the best choices in packaging design. For example, an exquisitely designed paper handbag can be a perfect fit. It is not only convenient for consumers to carry, whether for daily shopping or as a light packaging for gift-giving, but also saves a lot of packaging materials from an environmental perspective, reduces resource waste, and conforms to the current concept of green life.

Take yellow peaches as another example, their peels are as fragile as thin paper and may leave scars with a light touch. Especially with the highly developed express delivery industry today, yellow peaches have to travel a long way from orchards to dining tables, during which collisions and extrusions may threaten their quality at any time. To solve this problem, studies have made great efforts in the structural design of yellow peach express packaging, innovatively adopting a suspended buffer structure. With the cleverly placed buffer materials, yellow peaches are in a relatively suspended state inside the packaging, and the external impact force is effectively weakened by the layered buffer materials, building a comprehensive protective barrier for yellow peaches to avoid the bumps during transportation. At the same time, the whole packaging is made of corrugated cardboard, a lightweight but tough and pressure-resistant material that can provide stable support for yellow peaches [14].

ii. Environmental sustainability

In the current era of pursuing green life and sustainable development, the environmental sustainability of fruit gift packaging has attracted increasing attention, and the thought of “Fine Materials and Exquisite Craftsmanship” upheld by traditional Chinese craftsmanship provides highly valuable enlightenment for this field.

Starting with “materials”, selecting environmentally friendly materials is the cornerstone of practicing sustainability. For fruits with hard peels and long storage periods, such as apples and pears mentioned earlier when used as gifts, abandoning complex and non-degradable plastic or foam packaging and choosing simple paper handbags is a precise practice of this concept. Reducing the use of paper also greatly reduces the burden on the environment. Moreover, from an aesthetic point of view, through careful design, paper handbags can be printed with exquisite fruit patterns, warm blessing words, or adopt the simple origami craft, endowing the packaging with unique cultural charm. Thus, while carrying fruits, it becomes an exquisite carrier for conveying emotions, realizing the harmonious unity of “fine materials”.

The “materials” of packaging for fragile-skinned fruits such as yellow peaches as gifts are also crucial. The use of corrugated cardboard not only protects delicate yellow peaches from collisions and extrusions during transportation due to its light weight and toughness, but also stands out for its environmental protection properties.

Compared with some composite packaging materials containing harmful substances, corrugated cardboard is non-toxic, harmless and easy to degrade, conforming to the law of natural circulation. In the production process, "exquisite craftsmanship" is fully reflected. The exquisite design of the suspended buffer structure not only ensures the safety of fruits but also does not consume excessive materials, which is a rational use of resources; the consideration of reducing the use of tape avoids environmental pollution caused by tape.

Fruit Gift Packaging Design under Modern Concepts [15] points out that the design of fruit gift packaging should start from three aspects: modeling design, size design and structural design. For example, foldable and reusable fruit gift packaging can be designed to reduce the waste of packaging materials. This structural design not only reflects exquisite craftsmanship but also meets the requirements of environmental sustainability.

In a word, rooting the thought of "Fine Materials and Exquisite Craftsmanship" deeply in the design of fruit gift packaging, controlling from the selection of materials to the production process and packaging appearance, and exploring the possibility of environmental sustainability in an all-round way can make fruit gift packaging protect the natural environment we live in while conveying delicious food and expressing heartfelt wishes.

4.1.2. Innovation strategies for fruit gift packaging materials

First of all, selecting environmentally friendly materials is an important measure in line with the concept of sustainable development in modern society. For example, degradable packaging materials such as biodegradable plastics and paper materials can be used. These materials can decompose relatively quickly and reduce environmental pollution. A study investigated the effects of different packaging materials on the cold storage effect of *Rosa roxburghii* fruits, mentioning that biodegradable plastic flexible bags performed excellently in maintaining fruit quality, with a weight loss of less than 5% during a 30-day storage period, while cartons showed a large weight loss and fruits were more susceptible to fungal contamination. This indicates that biodegradable materials have great potential in fruit gift packaging [16].

In the innovative exploration of fruit gift packaging materials, the innovation of composite materials has become a highlight. On the one hand, actively develop new composite materials integrating multiple advantages, which can accurately adjust the gas composition inside the packaging, create a suitable microenvironment for fruits, and effectively extend the fresh-keeping period. The outer paper material not only endows the packaging with a simple and natural appearance but also is very convenient for printing various exquisite decorations to enhance the visual appeal of gifts. On the other hand, organically integrate bio-based degradable plastics with plant fibers, which not only greatly enhance the overall strength of the packaging to cope with various collisions during transportation and handling but also ensure that the materials can be completely degraded after being discarded, completely solving the environmental pollution problem caused by traditional plastics.

The application of intelligent materials also injects new vitality into fruit packaging. Intelligent color-changing materials can change the color of the packaging in real time according to the ripeness and freshness of fruits, allowing consumers to intuitively know the best eating time at a glance.

The application of new materials profoundly reflects the view of “fine materials”, which is an inevitable choice to adapt to the development of the times and meet market demand.

4.2. Improvement and Optimization of Process Technology

Applying the thought of “Fine Materials and Exquisite Craftsmanship” to the improvement and optimization of fruit gift packaging process technology can improve the quality and value of fruit gifts. The following will discuss the improvement and optimization strategies of fruit gift packaging process technology based on this thought from multiple aspects.

With the development of science and technology, automated packaging technology is more and more widely used in fruit gift packaging. For example, a fully automatic pomelo packaging machine includes a film supply mechanism, a film cutting mechanism, a bundle mouth clamping mechanism, a receiving mechanism and a strapping mechanism, etc. It not only greatly liberates labor and reduces production costs but also avoids the shortcomings of heat shrink packaging on the market, providing consumers with higher quality and delicious fresh pomelos. Automated packaging technology can improve packaging efficiency, ensure the consistency of packaging quality, and reduce labor costs at the same time.

In addition, there are many innovative processes, such as the innovation of cutting and forming processes. Laser cutting is used to achieve precise cutting of complex patterns, making the packaging edges smooth and delicate. For paper packaging, mold pressing forming creates a 3D three-dimensional effect, such as embossing the fruit outline on the box surface to enhance the tactile and visual impact; for edible film packaging, the heat sealing process is optimized to ensure the seal is tight and beautiful. In addition, traditional embroidery and paper-cutting art are transformed into modern packaging decoration methods, such as embroidering fruit-themed patterns on cloth packaging or applying paper-cut hollow technology to paper sleeves, inheriting cultural heritage and realizing the presentation of “exquisite craftsmanship”.

4.3. Innovation and Practice of Design Concepts

4.3.1. Modeling design

Fruits themselves have a variety of natural forms. According to the thought of “Fine Materials and Exquisite Craftsmanship”, natural bionic modeling can be adopted to design packaging. For example, making packaging containers imitating the shape of fruits and using the strawberry shape for strawberry gift packaging can not only make the packaging closely combined with the product but also have visual interest. This kind of modeling design can highlight the characteristics of fruits, enhance consumers’ intuitive cognition of fruit types, and reflect the ingenious use of natural forms, showing the aspect of “exquisite craftsmanship” in “Fine Materials and Exquisite Craftsmanship”.

In order to make fruit gift packaging stand out among many products, creative three-dimensional modeling can be used, such as designing a gift box with a multi-layer structure, each layer displaying fruits in a different way, like a rotating layered structure. After opening the packaging, consumers can see the display of fruits from different angles. This three-dimensional modeling has high technological requirements, which need to consider the stability of the structure and the support of

materials. It is a practice of the requirements of “exquisite craftsmanship” and “high-quality materials” in “Fine Materials and Exquisite Craftsmanship”, which can improve the grade and attractiveness of the packaging.

4.3.2. Structural design

The thought of “Fine Materials and Exquisite Craftsmanship” enlightens us to focus on functionality in structural design. For gift packaging combining a variety of fruits, a layered and zoned structure can be adopted. For example, placing soft berries in an independent upper zone to avoid being crushed by heavier fruits in the lower zone; placing fruits with strong odor emission separately from other fruits to prevent flavor mixing. This structural design requires reasonable materials to make zoning partitions, such as using materials with a certain flexibility and odor insulation, and the craftsmanship should ensure the firmness of the partitions, which is a good interpretation of “Fine Materials and Exquisite Craftsmanship”.

From the perspective of consumer experience, fruit gift packaging should be designed with easy-to-open and resealable structures. For example, using a zipper seal or a seal with reusable adhesive tape, which is convenient for consumers to reseal and preserve after taking part of the fruits. In terms of material selection, it is necessary to consider the stickiness and durability of the sealing material, and in the process design, it is necessary to ensure the convenience of opening and sealing operations, reflecting the requirements for exquisite craftsmanship and high-quality materials in the thought of “Fine Materials and Exquisite Craftsmanship”.

5. Conclusions

Based on the thought of “Fine Materials and Exquisite Craftsmanship”, this study deeply analyzes the current situation, problems and improvement strategies of fruit gift packaging. By expounding the connotation of the thought of “Fine Materials and Exquisite Craftsmanship”, its important guiding significance in modern design is clarified. The current research reveals many deficiencies of the current fruit gift packaging in terms of over-packaging, material environmental protection and the coordination of design and function, and the relevant research on the application of the thought of “Fine Materials and Exquisite Craftsmanship” in fruit gift packaging is still blank in the relevant field.

The improvement strategies put forward based on the thought of “Fine Materials and Exquisite Craftsmanship” cover multiple dimensions such as the selection and innovation of packaging materials, the improvement and optimization of process technology, and the innovation and practice of design concepts, providing theoretical and practical paths for the sustainable development of fruit gift packaging. However, the research also has certain limitations. For example, the feasibility and market acceptance of some improvement strategies still need to be further verified, and there may be challenges in terms of cost and technology in practical application.

Looking forward to the future, fruit gift packaging is expected to achieve new breakthroughs under the in-depth integration of the thought of “Fine Materials and Exquisite Craftsmanship”. With the continuous improvement of consumers' environmental awareness and aesthetic level, the application of environmental protection materials will be more extensive, and intelligent packaging technology may become a new trend, providing intelligent solutions for fruit fresh-keeping and quality monitoring. Design concepts will pay more attention to personalized and emotional

expression to meet the diversified needs of consumers. At the same time, the continuous improvement of industry norms and standards will promote fruit gift packaging to move towards a more green, innovative and practical development path, realizing the coordinated development of economic benefits, social benefits and environmental benefits.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

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