

Based on the concept of "city double repair" under the application strategy of urban waste

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Abstract: As an important part of the development and modernisation in China, the construction and development of urban landscape is always our focus. In the process of landscape design, urban waste is taking up space, and may also pollute the environment, however, some of the waste can be recycled and reused in construction. This paper provides certain strategies applied in the urban design to enlarge the material options and scenarios using the waste in order that these abandoned material can be recycled second time during cities' construction thus realizes a sustainable development, with more avant-garde landscape conceptions and more valuable references.

1 RELATIONSHIP BETWEEN URBAN DOUBLE REPAIR AND URBAN WASTE APPLICATION

The ministry of housing and urban-rural development recently issued a guideline on strengthening ecological restoration and urban repair work, proposing that cities formulate the implementation plan of "urban double repair" in 2017, promote a number of demonstration projects, and the work of "urban double repair" will be carried out nationwide in 2020^[1]. The concept of "double repair in cities" includes two major projects of ecological restoration and urban restoration, namely: "ecological restoration and urban restoration" This idea refers to the concept of re-ecology to restore the damaged natural environment, topography and landform in cities and improve the quality of ecological environment; With the concept of renovating and repairing, illegal buildings are demolished, urban facilities, space environment and landscape are restored, and urban characteristics and vitality are enhanced^[2]. The concept of "urban double repair" brings hope to solve this problem and has high operability to serve the development and renewal of urban landscape.

Resources are needed for urban development, but a large proportion of resources will be disposable materials, and produce a lot of waste when they are used. Although some materials do not completely lose the value of secondary recycling after use, they will be abandoned due to some objective factors such as having a low recycling value, which results in a large amount of waste in the city, affecting the beauty of the city and polluting the urban environment.

2 CLASSIFICATION OF URBAN WASTE

Urban waste reuse is the process of recycling resources by design or other means. Urban waste is divided into: household waste, construction waste, industrial waste and so on. For example, construction waste bricks and stones are reprocessed into permeable bricks for ground paving, household waste used bottles and pans become planting utensils, and waste tires become landscape pieces, all of which are challenges to traditional landscape construction and part of recycling and utilization of waste materials in ecological restoration. The use of urban waste can bring new interesting experience to the urban landscape, its unique design with typical shape or resource differs from traditional conception and material. The reconstruction of materials is the protection and reuse of natural resources. Many designers introduce the Organism of nature into the use of wastes and integrate the power of nature into the construction logic of materials^[3].

Material production needs to consume energy and resources, so urban waste can directly replace this part of consumed materials, which can save the consumption of conventional materials in daily production and life, and the old materials can be effectively recycled and utilized, so as to achieve no waste of resources. The majority of construction materials can be recycled. Due to the ignorance of the waste and low cost of raw materials, the production of construction material and consumption of natural resources expend without limit therefore aggravate the pollution. The reuse of construction waste is limited by uncertainty of row material supply, at the same time, the recycling material is not applied in a large scale.

This is a form of several construction waste recycled materials resource types of alternative materials, Which

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will realize the ecological use without affecting its basic function, after collection and sorting, the urban waste is

divided into three types, and the following tables are listed:

TABLE I. CLASSIFICATION OF DAILY HOUSEHOLD WASTE

Material type	application	Alternative materials
<i>Kitchen waste</i>	<i>Landscape plant compost</i>	<i>Industrial chemical fertilizer</i>
<i>Hazardous waste</i>		
<i>Recyclable waste</i>	<i>Sketch landscape</i>	<i>Plastic steel, GRC and other comprehensive materials</i>
<i>Other rubbish</i>	<i>Terrain shape</i>	<i>Cement pavement, etc.</i>

TABLE II. CONSTRUCTION WASTE CLASSIFICATION

Material type	application	Alternative materials
<i>Material waste residue</i>	<i>Permeable brick</i>	<i>common brick clay</i>
<i>Concrete blocks</i>	<i>Garden, urban landscape wall construction</i>	<i>Ordinary concrete</i>
<i>Discarded tiles and masonry blocks</i>	<i>Road paving</i>	<i>New paving material</i>
<i>Waste mortar</i>	<i>Road paving</i>	<i>New paving material</i>
<i>Asphalt block</i>	<i>Permeable brick</i>	<i>common brick clay</i>
<i>Waste plastics</i>	<i>Garden sketch, road decoration</i>	<i>Common plastic</i>
<i>Scrap metal</i>	<i>Garden sketch, road decoration</i>	<i>Common metal</i>
<i>mud</i>	<i>Permeable brick</i>	<i>common brick clay</i>

TABLE III. INDUSTRIAL WASTE CLASSIFICATION

Material type	application	Alternative materials
<i>Blast furnace slag, steel slag</i>	<i>Paved roads</i>	<i>macadam</i>
<i>Fly ash, desulfurization ash</i>	<i>Road foundation</i>	<i>Dust, graded sandstone</i>
<i>Carbide slag</i>	<i>Road foundation</i>	<i>Dust, graded sandstone</i>

3 APPLICATION METHODS AND STRATEGIES

The waste is caused by the process of modernization of the city or the loss of its original function under constant time. The original form of these wastes served as a part of local inhabitants' memory, a symbol of old time as well. Therefore, the reuse of these wastes can be seen not only as an effect of nostalgia, but also a process of artistic and historical renovation which represents its indigenous culture and spirit.

The normal raw materials should be replaced by waste during the construction of a new city. Take Taiyuan, a medium scale city as an example, an antique citadel with park which located in Datong Street adopted the industrial waste as its construction materials for wall building. This citadel focused on the waste treatment produced by the local steel plant. A huge amount of residues from steel, coal, and powder etc. were converted to citadel brick to make more benefits. During that treatment, a lot of industrial machines were created as well to fulfill the harmless treatment. Based on these technologies, the wastes can be transferred to cements, mineral cotton, the brick even the fertilizer. The wall of citadel is built by these bricks with the same process of construction.

Furthermore, household waste can replace the fertilizer of horticulture which minimize the use of industrial fertilizer and avoid the waste landfill treatment. It's more cost effective and environment friendly.

The city is a complicated organism, and buildings are its major part, we called city's landscape composed by the building and relative environment. All the materials weather natural or artificial used for the landscape are called landscape material, divided by soft or hard type. Hard type includes building, path, rock and water, soft type includes plant. These landscape materials can use either conventionally newly produced materials or recycled materials. The land development project for the reconstruction of the shantytown in Shemenkou of Shijingshan District is a large-scale reconstruction project for recycling and reuse of construction waste in the Beijing area. On this basis, 630,000 tons of various types of recycled aggregates are produced from various construction wastes, all of which are used to replace the building materials in the community, including supporting municipal roads, supporting construction of the community, and landscaping projects.

In the traditional sense, landscape materials are mostly based on the consumption of natural resources. Procurement is relatively concentrated and very easy to purchase. However, as a landscape material, urban waste is achieved through recycling. From the present, China There is no corresponding manufacturer and corresponding regulations. The spatial environment and other elements of all individual buildings have certain characteristics in the urban landscape, such as street and lane facades, texture, and overall pattern. The most important goal of waste recycling is to summarize and

plan for the single matter in the urban landscape, so that it can become a part of the overall landscape, and integrate with the history and environment of the city. These have an important role in promoting regional economy, solid social development, and promoting traditional culture.

There are both natural and artificial landscapes in urban landscapes, as well as static hardware facilities and dynamic software activities. It is diverse and interweaves elements in urban landscapes. In traditional urban construction, both static and dynamic landscapes do not include waste recycling and reuse. Due to the accelerated pace of urban development in recent years, a large amount of waste has been flooded into all corners of the city, while urban landscapes Each of the local landscapes is created by native resources. Traditional cities have limited disposal methods for landfills, incineration power generation, composting, and comprehensive treatment. At present, incineration and landfilling are the main ways to deal with urban waste in China, and they are also the two methods with the largest amount of waste in China. These two methods will bring different degrees of secondary pollution and transportation costs in transit

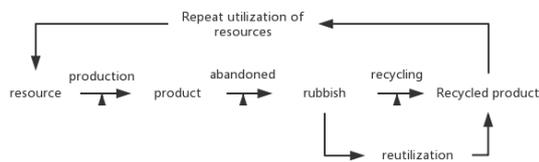


FIGURE 4 RECYCLING OF URBAN RESOURCES

4 REUSE OF URBAN WASTE

4.1. regeneration of landscape materials

Waste should be used as an alternative to conventional materials in the construction of new cities. For example, the construction of the archaized city wall and surrounding parks on taiyuan datong road is the first natural and cultural landscape created with industrial waste as raw materials in Shanxi Province. Ancient city and slag mountain park construction is to at the beginning of taiyuan iron and steel co., LTD., the production of waste problem, will produce a large amount of industrial waste, the rest of the taigang steel slag, blast furnace slag, fly ash, and so on industrial waste to create benefits. From steel slag in the treatment of industrial waste, recycling waste stainless steel, iron and steel scrap and created considerable economic benefits. In the waste slag production of cement and mineral wool raw materials at the same time, also successfully made steel slag cement brick, slag fertilizer and other extension products. Successfully convert industrial waste to cement baking-free brick, in datong road built into the wall of the quartet is created from the industrial waste, and other alternatives in the concrete construction of ordinary material is the same. And steel slag processing into new fertilizer, used in agricultural production, the production of new fertilizer can effectively improve the soil structure, increase production and income.

Landscape materials can be either conventionally produced or recycled waste. The reconstruction land development project of yumenkou shantytown in shijingshan district is a relatively large reconstruction project of the residential area in Beijing that USES construction waste recycling, covering an area of 251 hectares. According to the estimation at that time, the construction waste generated by the demolition is about 2.67 million tons. On this basis, various construction wastes are used to produce various kinds of recycled aggregate 630,000 tons.?

4.2. artistic creation of waste materials

City is a complex organisms, housing construction is that it constitutes the main body, and has the auxiliary building outside space environment, combine both called urban landscape, but produced a large number of people living in the city and industrial wastes, provides a lot of land around cities are riddled with waste. In the park of Dr. Evermore, Wisconsin, USA, there are the largest metal waste statues in the world. The largest metal waste statues are 50 feet high, 60 feet long, 120 feet wide and 320 tons in weight. They are made from a complete Marine rescue mechanical component 50 to 100 years ago, which was recycled and created by Tom evermore.

All natural or artificial resources applied in the landscape are called landscape materials, which can be divided into two categories: soft and hard. The hard landscape materials mainly include buildings, roads, mountains, rocks and water bodies, etc. The hard landscape materials are landscape plants [5]. Landscape materials in the traditional sense are mostly based on the consumption of natural resources, which are relatively centralized and easy to purchase. However, as for urban wastes as landscape materials, they are realized through recycling. However, at present, there are no corresponding manufacturers and corresponding regulations in China. All individual buildings around it and other elements in the urban landscape of space environment has certain characteristics, such as street facade, skin texture, the overall pattern. The main goal of waste reuse is to summarize and plan the single objects in the urban landscape, so that they can become part of the overall landscape and integrate with urban history, environment and so on. These to promote regional economic and social development, carry forward the traditional culture plays an important role [6].

5 CONCLUSION

Urban double repair provides a new urban landscape organization mode for urban landscapes, and implements new concepts and methods of planning and design. During the design process, this requires our scientific and reasonable planning, and it also requires continuous improvement of our original urban landscapes. Recycling waste from production and living can more effectively speed up the process of "urban dual repair" and promote the mode of harmony between man and nature.

There is a large amount of urban waste in urban construction. They come from our daily production and life. The representative of traditional building materials in waste is brick, tile, earth, stone, wood. They are also our

daily The main impression represents the memories of several generations. In the current urban life, the main purpose of the new city construction is the ecological restoration of the city and the process of repairing the city. During this period, urban waste can better demonstrate waste and renewable building materials. In terms of energy saving and material saving, the ecological value of this low technology is also the application of urban waste and the energy saving value and application research formed during the process of urban double repair.

This paper studies the application value of urban waste in urban construction under the concept of urban dual repair, which is the conservation of resources and energy, and analyzes the value of urban waste reuse. The function complement and improvement value is the crystallization of wisdom of landscape gardeners in long-term practice, and is the product of the combined effect of art and science. At this stage, the types of urban waste used in landscape design are very limited. A large amount of urban waste is discarded by people, which increases the pressure on the surrounding environment of the city, and requires more resources to build our city. For urban waste, most of them focus on the two methods of directly retaining utilization and transformation to change urban waste. Can we enhance the application of urban waste technology through various transformations with materials and materials? , To create more new environmentally friendly ecological materials using urban waste as raw materials, reducing the burden and pressure on today's resources and environment

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