

# Study of Brown Land Governance Based on Stakeholder Perspective

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**Abstract.** In the early stage of China's industrial development, most factories were built in urban centers or surrounding areas. Extensive management and environmental protection measures were not enough. The pollution of land was very serious, and the area of brown land increased year by year. Brown land is often harmful to the human body through skin contact, intake, or inhalation. China is now in the period of rapid industrialization and urbanization, and the renovation and redevelopment of the brown land is the inevitable choice for the sustainable development of the city. Brown land reconstruction requires the participation of all parties, including developers, polluting enterprises, residents, social groups, owners, consulting companies and the government. Only when dolly party participates together, negotiates and exchanges with each other, can we alleviate conflicts, balance interests and reach consensus so as to better solve the brown land problem.

**Keywords:** *the pollution of land, the renovation and redevelopment of the brown land, Brown land reconstruction*

## 1. Introduction

The concept of "Brownfield" originated from the United States and was introduced into China around 2005. Brownfields are mostly industrial lands, including abandoned and still-utilized old industrial areas. These lands, which have a certain degree of pollution or environmental problems are called "Brownfield"[1]. People already knows that the brownfield will poisoning the human body. It is reported that the poisonous and harmful substances in the brownfield can slowly volatilize and release toxic substances through the soil and pipeline after seeping into the ground. The harmful substances and toxicity can last up to hundred years.

The ministry of land and resources ministry issued National Soil Pollution Survey Communique, according to this communique, soil environmental condition overall situation is not optimistic in our country, the problem of soil pollution in some areas is serious, soil total which was 16.1%, the farmland soil level which is as high as 19.4%. Soil is the material basis for sustainable development of economy and society. The quality of soil environment is related to the health of the people and the construction of beautiful China. Soil pollution prevention and treatment has become an important part of ecological civilization construction and environmental protection work[2]. At present, China is in the period of rapid industrialization and urbanization, and the renovation and redevelopment of brownfield is an inevitable choice to realize sustainable urban development.

## 2. The Problems of Brownfield in China

### 2.1 The Meaning of Brownfield

Brownfield refers to abandoned or idle land that has not been fully utilized for industrial or commercial facilities. The development or use of this type of land tends to be complicated by

existing or potential pollution problems[3]. The brownfield is actually difficult to discern, because the pollution in the soil is often invisible, and the brownfield often causes harm to the human body through skin contact, ingestion, or breathing.

At present, China's land resources are tense and the effective use of land is low. As an important non-renewable and scarce resource, land has become a major bottleneck restricting China's economic progress and social development. In the early stage of industrial start-up in China, most of the factories were built in urban centers or surrounding areas. Most factories are not well managed, the environmental protection measures were not perfect, and the land pollution was very serious. The area of brownfields increased year by year. Environmental quality, public health security, social stability and sustainable economic development are seriously threatened.

## **2.2 Problems of Brownfield Governance**

With the increase of public environmental awareness, China's "brownfield" issue has begun to surface in public view. The strong development of the real estate market has, to a large extent, become an important driving force for the governance of "Brownfield". In the process of rapid urbanization in China, most of the land prices in the downtown areas have rapidly risen, and industrial enterprises originally built in the city center have moved to the suburbs. The vacated sites are often used to build residential or business buildings. The owner also knows nothing about the historical data of the residential area. What is even more worrying is that after a large number of polluting companies moved out of the urban areas, the remaining "brownfields" were regarded as "cash cows" by some local governments and real estate developers and they were built as affordable housing or commercial houses without "cleaning poison". Most of these lands with different levels of pollution are facing the actual demand of "disinfection". Brownfield has become a prominent issue affecting the sustainable development of our cities.

The reuse of brownfield has raised new issues for land management. With the economic and social development, land ownership and land use will change more and more frequently. More "green plots" may be regarded as "brownfields" due to changes in land use; and more "brownfields" may be transformed into "brownfields" due to changes in land tenure, without "cleaning poisons". "Green plot", re-enter the market. Brownland governance is still in its infancy in China. There are many stakeholders involved. Coordinating and handling the relationship between stakeholders is the key to solving the brownfield problem in China.

## **3. Stakeholders in Brownfield Governance**

### **3.1 Stakeholder Theory**

Stakeholder theory refers to the management activities of the company's business managers to comprehensively balance the interests of various stakeholders. This theory holds that the development of any company cannot be separated from the input or participation of various stakeholders[4]. What the company pursues is the overall interest of stakeholders, not just the interests of certain entities.

Stakeholders include trading partners such as shareholders, creditors, employees, consumers, and suppliers, as well as pressure groups such as government departments, local residents, local communities, media, environmentalism, and even the natural environment and human offspring. Objects directly or indirectly affected by business activities. These stakeholders are closely related to the survival and development of enterprises. Some of them share the company's operating risks, some pay for the company's operating activities, and some have supervision and control of the company. The company's business decisions must consider their interests or accept their constraints.

### **3.2 The Stakeholders of Brownfield Governance**

Stakeholders in brownfields refer to individuals and groups that have been affected by brownfields or have exerted influence on brownfields during the idle, replacement, development

and use of brownfields. These include developers, polluting companies, residents, social groups, owners, consulting firms, and governments.

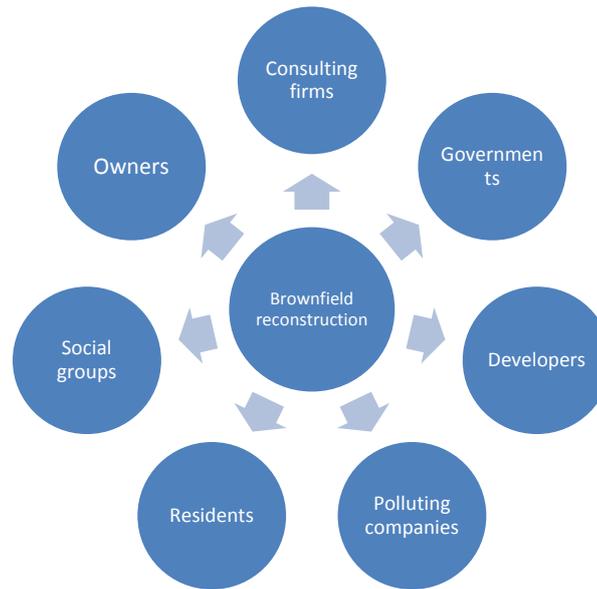


Figure 1. Stakeholders reconstructed brownfield

As the most direct participants in brownfield governance and redevelopment, the behavior of developers is directly related to the types of future use of brownfields, their governance effects, and the impact on the surrounding environment.

Unprecedented large-scale urbanization and industrial upgrading in China have led to the relocation or restructuring of a large number of traditional industrial enterprises, and large areas of industrial brownfields have been exposed[5]. In large and medium-sized cities in the old industrial bases in Northeast China, the Yangtze River Delta, the Pearl River Delta, and the Beijing-Tianjin-Hebei region, most polluting enterprises have relocated. As China has no corresponding policies and regulations in the management of brownfields, polluting companies do not explicitly assume governance obligations in brownfield governance.

Indigenous residents around brownfields are the most direct stakeholders in governance and redevelopment, and their development and implementation effects are directly related to their living environment.

Only by relying on social groups can the disperse forces be aggregated. These groups are different from the government and enterprises. They have non-profit and public welfare characteristics and are easy to obtain the trust of local residents. As representatives of residents' interests, they can better participate in brownfield governance and redevelopment, including community groups and others. Non-governmental organizations. Social groups play an important role in the development of brownfields around the community.

Due to lack of information and asymmetry, the owner lacks the right to know about the brownfield. The owners of the brownfields are the final payers during the reconstruction process, and the owners have the right to know about the brownfields.

Management of brownfield remediation needs to be completed by professional soil remediation and remediation management companies, and assessment requires a professional evaluation agency to connect, because these consulting companies act as third-party agencies[6].

In the process of brownfield governance, the government has fund support, technical support and legal development, and can also receive corresponding social benefits.

#### 4. Brownfield Governance Advice

The reconstruction of brownfields requires the cooperation of multiple departments and disciplines. The participation of multi-stakeholders as an important means for the reconstruction of brownfields has been widely recognized[7]. More and more stakeholders require mutual consultation and mutual understanding among various stakeholders, communicate and participate together to ease conflicts, balance interests, and reach consensus.

The cost incurred by the developer not only includes the cost of development, but also includes the cost of pollution control and even the potential cost of future joint and several liability, the joint liability cost is extremely uncertain and high risk. The local community is often unorganized, lacks relevant experience for the redevelopment of complex projects such as brownfields, and does not trust external groups, and social groups can just take this role. In some brownfields where property owners cannot be found, social groups can acquire property ownership first and then transfer them to companies that are involved in the development of brownfields. Therefore, ownership of property by social groups accelerates the process of land transfer.

The government, developers and residents in brownfield reconstruction are the most direct stakeholders. The game between them often determines the final institutional arrangements[8]. As brownfields are suspected of being contaminated and businesses have moved away, fewer jobs have been created, so improving brownfields and their surrounding environment, promoting employment, and assisting relocation companies are all new issues facing the government. We must combine the sustainable development of brownfields with the creation of livable communities to ensure a balanced relationship between the environment and the economy. At the same time, it will strengthen brownfield governance in all aspects of science and technology, legislation and administration, actively seek developers and developers in a wide range of fields, and help them better understand environmental issues and find partners for land purification. The land management department must not only modify the “family genealogy” for each land, but also change the “family tree” for the land change, truly grasp the history of land ownership, change of land use, link with the environmental protection and industrial and credit departments, and integrate the cadastral information system and digital city, the integration of environmental protection and industrial information related to parcels provide data support for the safe use of stock industrial land, especially brownfields.

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