

Reflection on Eco-civilization Design and Governance of Urban Landscape

Based on floods and Inundations of Wuhan in 2016

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Abstract—The increase of inundations in Wuhan is mainly caused by lake filling and reclamation for buildings, it reflects the lack of overall layout and protection on rivers and lakes during the urban layout by authorities, besides, a string of lake filling results turn out that authorities have no adequate governance over the lake filling by way of laws and economic penalties. In the meantime, real estate capitals have bound what authorities can do, blocking the control over the lake filling and environmental layout through legal and economic measures. As important functional sectors in administrating public resources, authorities are required to make decisions relying on the internationally newest and optimal eco-civilization results, providing efficient legal protection on the sustainable development of rivers, lakes, pools and wetlands.

Keywords—eco-civilization; inundation; lake filling and reclamation for buildings; real estate capitals binding authorities; refer to excellent cultural results

I. INTRODUCTION

Since July 2016, excessive precipitations in Wuhan, Hubei Province has brought serious aftermath, reasons for such phenomena and problems are thought provoking. Since June and July, there happened risks of floods at Changhu Lake, the boundary of Jingzhou of Hubei Province and Qianjiang, dyke breaches of Xiaosi Lake, Caidian, Wuhan City and Junshan Street, Tongshun River, Hannan, inundation of Sandian Village, Sandian Town, Xinzhou, lake breaches in Qichun, floods discharge through blasting between Liangzi Lake and Niushan Lake, severe inundations occurred in communities at Nanhu Lake, Huangjia Lake and Baisha Shoal, especially the worst disasters happened at Fenghua Tiancheng, Youdian Communities where residents came in or went out through a temporary bridge made of steel pipes, and the flood height in living quarters was over 1m, lasting 20 days. There were even hover ships used for traffics and meals in Wuhan University, Huazhong University of Science and Technology and so on, it was ever reported that fish was caught in some colleges. In the past decade, we often saw inundations, shipping or sea watching in urban areas, Wuhan, which lasted without reduction, main reasons, in the opinion of the author, include the following.

II. LAKE FILLING AND RECLAMATION FOR BUILDINGS IS THE MAIN REASON

The flood control and disaster relief white book released by Wuhan Civil Affairs Bureau shows, on July 6, 2016, there were 150 places inundated, about 25,000 residents affect at Nanhu Lake, Hongshan District, 18,000 of whom allocated, at the peak time, 2,500 people were allocated together, which lasted more than 20 days, scare in the history of urban flood control.

According to the white book, there are many reasons causing the inundations, in addition to inefficient flood control and prevention system layout, the immoderate urban real estate developments have broken natural laws, the lake fillings have disordered the water systems, causing the reduction of water regulation and storage. The *Blue Book of Geographic Information in Wuhan* reveals, since the 1980s, the lake area reduced about 340,000 mu in Wuhan; in the recent decade, the lake area reduced about 10,000mu, almost all of which have been used for real estate development, 53.3% of the lake fillings are granted legal review and approval procedures by relevant authorities, 46.7% are done illegally. In recent years, some measures have been taken against illegal lake filling, yet there are still some illegal constructions done in private.

III. REDUCTION OF RIVERS, LAKES, POOLS AND WETLANDS AND DUMPING OF CONSTRUCTION WASTE ARE REFLECTIONS OF LACK OF URBAN OVERALL LAYOUT

A report made by Li Manying and Wang Yongsheng, reporters with Chutian Metropolis Daily shows, a 400mu pool was backfilled at Golden Bridge Princeton Community, Dadun Road, Wuhan Economic Development Zone, which was used as waste yard for construction wastes such as rejected soils from building constructions around, it was confirmed by a person responsible with Hannan District Layout Bureau that after being fully filled with construction wastes, it will be used as green lands. Data and facts show, there are a number of lake fillings used for real estate development in Wuhan, actually many buildings and residential communities are built on lands on the lake. And main lakes such as Donghu Lake, Shahu Lake, Moshui Lake, Huangjia Lake, Taizi Lake, Tangxun Lake have their areas reduced gradually in Wuhan. With regard to the lake fillings, on the one hand, owners fill it with construction

wastes; on the other hand, in order to develop real estate along lakes, real estate providers employ other construction units for backfilling, and so on. In any case, the urban overall layouts by authorities are inefficient.

For a city, the control and supervision over rivers, lakes and pools are carried out conditionally by manmade satellite, monitoring system, manpower patrol, awarded complaints and so on. The urban layout in lakes and wetlands shall not be focused only on drawings, blueprints or governmental work reports. The supervision and layout lakes and wetlands in areas are always conducted independently because of benefits, which are bound by real estate capitals to sell public resources, as a result, the layout authorities and governments are bound by real estate capitals, which can do nothing to protect public resources for the people, finally the real estate capitals are going beyond public benefits.

IV. INCAPABILITY OF AUTHORITIES, POLICIES, LAWS, LEGISLATION AND ECONOMIC PENALTIES IN LAKE FILLINGS

It is a compelling responsibility and obligation for authorities to protect and safeguard the environment, follow natural laws, make full use of natural resources and stabilize local environment and weather. Environmental resources such as rivers, lakes, wetlands and pools are resources to the public and environment. Authorities still have inherent and natural duties to manage, the public resources cannot be used for benefits or real estate development, and authorities should not be bound by real estate capitals, for example authorities have no adequate legislation or power legal measures and economic penalties to protect rivers, lakes, pools and wetlands through law making. Previous data show, authorities almost have no economic penalties over lake filling, it costs little for real estate capitals for lake filling, consequently the lake failing has become a popular trend.

Since construction units have directly dumped construction wastes into Changjiang River, lakes or pools, actually the areas of lakes, rivers, pools and wetlands shrink increasingly, the fillings still continue, it turns out that authorities have extremely poor monitoring and economic penalties, where government officials are thought having relations with misconduct or corruption.

V. LACK OF REFERENCE OF GLOBAL ECO-CIVILIZATION HISTORY AND EXPERIENCE IN GOVERNING RIVERS, LAKES, POOLS AND WETLANDS

A great number of historical experience and literatures related to eco-civilization still fail to wake authorities in environmental protection, lake control, river and lake filling with construction wastes, and many authorities do nothing in law, policy and economic penalty. During the American civil war, in order to expand the production, farmers in the south ever filled lakes for lands, which caused dry and rainless weather in the south; the illegal exploration and chopping in mines and industries in the US caused sandstorms, which severely depraved weather and environment there; in order to restore rivers, Germany restored the rebuilt strengthened projects into naturally curve river. Foreign scholars such as McHarg published the *Design with Nature* (1969), Rachel

Carson published the *Silent Spring* (1962); Chinese scholars such as Yu Kongjian published the *Way for Urban Landscapes—Talk with Mayor* (2003), the *Way for Adverse "Outlay"* (2005) and Sun Shiwen published the *Modern Urban Layout Theory* (2007) and so on, there have been so many classic literatures which are related to global environmental protection, rivers, lakes, pools and wetlands protection and development, it is true that all of the literatures have provided the latest science and information for authorities and enterprise in decision making. However, for authorities are bound by real estate capitals because of benefits, illegal public resources developments are tolerated by authorities again and again. Relying on the absolute power of governance, ignoring laws, economic strategies and economic penalties, authorities have sacrificed public resources and environment including rivers, lakes, pools and wetlands, transferring the public benefits of the people completely to the real estate capitals, and even sharing illegal benefits, so as to shape a modern city image based on reinforced concrete. On the other hand, most of the people are little aware of environmental protection and get no chances to access to governmental decision making, having no ways or difficulties to protect rights of their own. As a result, literatures and excellent results of eco-civilization around the world fail to be borrowed for rivers, lakes, pool and wetlands controls in China, meanwhile, authorities, as decision maker, reviewer, become leaders to monopolize and destroy local public resources and environment.

VI. THE NATURAL COURSE AND DESIGN BASIS OF LANDSCAPE ECO-CIVILIZATION

Soils are of infiltration and moisture absorption, absorbing or blocking some mineral substances or organic matters; green plants have water conservation and photosynthesis, which may absorb mineral substances and microorganism in soils as well as carbon fixation. Natural forces have created geologies and territories such as numerous rivers and lakes in Wuhan, which show the Yangtze Valley is rainy, and the city where hundreds of lakes and rivers share the same sources. Rivers are winding, lake banks take on irregular changes, there are no steep banks along rivers, instead, there stand beaches and wetlands that extending up to deep water, the natural evolution has increased the biological diversity, which can contain more precipitation, decompose or turn into more organic matters and mineral substances so as to degrade pollutants. Co-existing with lakes, riverbeds and soils, natural greening can form green corridors and natural reserves and so o, due to the corrosion of real estate in recent two decades, the greening and bio-system that have eco-regulation functions have disappeared gradually. With the natural reduction of strong precipitation, a lot of rivers and lakes have disappeared, on which, rows of buildings are built on the former lands and rivers, which have caused severe inundation in cities. Excessive population and seizing of natural resources are actually destroying the ecology, with regard to the ecological balance, the bio-diversity must be greatly impacted, besides, numerous buildings and industrial constructions all will greatly change geology and environment, accordingly all layouts and landscapes shall follow natural laws and avoid production and construction at places where it is vulnerable to floods and disasters.

Over stressing in flood drainage for projects, in rainy days, numerous rains are actually a resource, which can be stored in soils, however, most are drained into Changjiang River and seas, which brings high flood pressure to the downstream and also causes wastes of water resources.

The core of landscape eco-civilization is based on the perfect combination of landscape ecology and aesthetics, so the landscape design has characteristics of combining leading natural ecology and valuing humanity factors, exerting the nature to work sufficiently, the integrated systematic landscape ecology, design and nature aim to serve the people.

VII. CONCLUSION

Global environmental protection shall follow natural laws, and rivers, lakes, pools and wetlands is a cyclic system, the existing excellent results of global environmental protection may be used as references, meanwhile, more attentions shall be paid to population policies and the population increase shall be controlled, the more the population is, the serve the resource destroy will be. Accordingly, due to the real estate capitals binding authorities, single demand for image projects and economic benefits by authorities, in China, the latest literature results are put aside, as a result, construction wastes and domestic refuses are used to fill rivers, lakes, pools and wetlands, and buildings stand on the former lakes, which are touted as houses nearing rivers and lakes, the lake filling with construction wastes are not accidental or trivial, all construction units will find places for wastes, and the lake filling has become the optimal way to solve, which has consequently become a social issue. So authorities which govern public benefits and public resources are required to protect the environment and public resources and places where the people live from macro to micro through legal and economic means, make full use of excellent eco-civilization results and take immediate measures, which shall not do that for appearance sake, not be bound by real estate capitals or share benefits with them, what authorities should do is to serve the people and solve problems.

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