

UI UF CU
Working Notes

Dr. Li Yu , Cardiff University
Lecture 6

“Approaches to Water Issues in the City of Dongguan, China – Lessons Learning”

19 January 2016 - Issued 31 January 2016

It is my pleasure to give a talk about the other live project, in a different country, in another place. The focus is mainly on the river and the river treatment. Without water, we are unable to survive. Transport and urban activities target the function of the river. Rubbish, including industrial wastewater occurs not only in Indonesia, but also in many developing countries. We have begun to realize that it is action by human beings that damage the lakes and the rivers.

Dongguan is located north of Hong Kong. It is an industrialized city involved in the manufacturing of I-Phones, TVs, and computers. There is a saying, “If Dongguan gets a cold, the market will be coughing.” There is a migrant population of 10M living in the city, with 80% from rural areas. Dongguan is south of Guangzhou and north of Shenzhen. The riverside is the most polluted area in Dongguan. The area used to be well known for rice production. There are so many rivers, that they created a problem for transport. The area city attracted the most polluted industries. Since the 2008 economic crisis and its impact on the Chinese market, the most significant impact hit Dongguan.

The Dongguan Riverside questionnaire was used to survey and interview local citizens and government officials. The survey covers issues of lifestyle and pressure from urbanization and industrialisation. ~~The infrastructure is not so well developed and people are trying to cope with the expansion and change directly.~~ We also looked at the planning targets relative to the riverside area for 20 Million people.

The river water quality is polluted from factories. The treatment capacity is not less than 60%. For a major city, the river quality does not reach an acceptable standard. There are still more than 20 paper mills. The classification of river water quality ranges from Class 1 water source, to Class II drinkable water, to Class III, drinkable water, fishing and swimming, to Class IV usable, but not drinkable, to Class V neither drinkable nor usable, to Minus V, highly polluted water.

The main source of water pollution is from Paper, Textiles, Electronics and Thermal Power, etc. The dilemma is the Environmental Protection Policy. The government tried to close most of the polluted industries. The government will support financially the closures. The water quality can be improved, but it puts pressure on the job market. It means 20M people will lost their job never receive services and may will have to move to another province. The industries employ huge numbers of people. If the GDP increases, the tax level increases. This is another issue or challenge. There is domestic sewage treatment, but not yet enough to cover the whole area ~~changes are required for sewage treatment. There are not enough pipelines to store the sewage in ponds or lakes. Certain percentage of sewage~~ All the redischarges is directly to the river, which is creating still polluted.

The research proposes to introduce alternative is the concepts of a ‘Sponge City’, which is similar to “low impact development” in the US or “sustainable urban drainage system” in Europe. A ‘Sponge City’ is able to adapt to climate change and natural disasters with resilience, just as a piece of

sponge. The rainwater can be stored. China's Central Government has ~~the~~ promulgated technology guidelines to build a 'Sponge City'. The guidelines include: infiltration ponds, green infrastructure ditches, details of how to construct a 'Sponge City' including roads with permeable surfaces and rain water retention ponds and filtration systems. Bio-pores, ecological retention parks and artificial wetlands are included in a 'Sponge City.' With so many cars and bikes, there is still the issue of secondary pollution which is part of the reason to build a wetland to clean up carbon emissions. This type of technology awaits the solution of the problem with sewage bio-treatment (a wetland system). Experience shows that it is possible to treat sewage and to involve civic engagement into a thriving bio-system, resulting in a country lake.

The advantages of adopting a 'Sponge City' include;

1. Flood Prevention
2. Addressing Water Shortages due to water pollution
3. Improving Living Quality with better green areas
4. Attracting higher educated people; presently there is a low-skilled labor force
5. Improve water quality and provide free space

The water system strategy involved restoration, mediating pollution, controlling the use of recycled water and dealing with flooding. Detailed methods to deal with water pollution include: developing a master plan for the water system, drainage, sanitation and disaster protection. From an Urban Planning, Design and Engineering standpoint, a systems approach is used to deal with water issues. With the management of wetlands, livestock and people , the value of land increases. Wetland park activities become a tourist attraction, with boats and restaurants so that the wetland, river and lake is now in Class II, an improvement from Class V.

This example raises the awareness of 'Sponge City'. ~~However there are some, the~~ restraints for adoption ~~and other aspects~~. Including understanding of the concepts, and coordination in delivery. The key word for 'Sponge City' is management. The planning officers may think that the wetland is a 'Sponge City'. That is only part of the idea. The whole society needs to understand the problems related to industry. In terms of management, the problems are decentralized. Many actions can be made local. Typically ~~in~~ Dongguan, there are ~~12~~ tiers of government instead of ~~—Also think of cities as being~~ 3-tiers. At the level of villages and towns the governance is very strong in terms of economic development. There are so many issues, that I am discussing three tiers to coordinate policy. (Meso-, Macro- Micro-) for delivering of "Sponge City".

At the Meso-Level the purpose is to raise local awareness and coordinate local government resources. There are financial concerns, such as raising the price of water. At the Micro-Level there are indicators of 'Sponge City' for each block that consider surface runoff. Recommendations are made for micro-level associations in the 'Sponge City' for local landscape architecture and gardening. The idea is to use local vegetation which will be more suitable to the local area.

There are also clear signs for general policy recommendations, comprehensive environmental impact assessment, open and accessibility ~~to access~~ for people ~~and animals~~. Additionally, management mechanisms for different tie levels of government need to be put in place. Relative to land use, the impact on health requires real-time monitoring, review of treatment targets and economic assessments. Measures also include the promotion of green economic development to realize the ecological process by ~~—By~~ addressing industrial symptoms and, tourist attractions ~~can be developed~~. Closing down the factories outright means tht other means of employment need to be

found, which calls for an Ecological Industrial Symbiosis to transform, for example, a paper factory into an Eco-Industrial Park. The top priority is experimental practice to enhance skills.

The proposed ecological symbiosis also involves cultures ~~and nostalgia~~ with boats and food. Each town has a different type of delicious food. There are also local arts and crafts. We are thinking that the critical issues is to make people realize their local culture and their belonging to their area. The local government plans to develop six local cultural sites with Dragon Boat competitions and Folk Art. In the proposals, ~~it was suggested there is a similarity between the towns~~ to inter-coordinate with each other under the theme of, "One Town, One World" to create an attraction for tourism.

Another research topic is for a Smart City Green Program. This involves evaluating 1,900 buildings for renewable energy potential and public involvement in the management mechanism.

Questions and Answers

1. Question – How do you cope with policy?

Answer – You have to cope with policy in a relaxed way, but the government has to force all the policy.

2. Question – Regarding the wetlands, how did the community organize itself?

Answer - First, there was support from the local government. Then, there is self-organizing.

3. Question - In Setu Babakan, the wetland is used for filtering and treating the water. How could this be developed?

Answer – In taking out the island, this could leave some more wetland that could be used as an educational facility to see how the water can be treated, using a bio-treatment system.

4. Comment - Linjun Xie

You describe a bright future, but in Guangxi Province and Guangdong Province in recent years, there has been a huge change in my hometown in Guangdong Province to raise the standard of wastewater, but the cement and the tire factories cannot afford the treatment of disposed water. The government hasn't provided enough subsidy. So the factories are moving to Guangxi Province where it is cheaper. The factories move in, the streams disappear, and air pollution comes in. The solutions come to the rich cities, but not to the poorer areas. The best solution for the government is to improve the technology and provide funding. So the factories can then treat our environment with some positive effect.

5. Comment - Prof. Li Yu

Public participation and the knowledge if people understand the risk of industries in remote areas will force the government to control the discharge from the polluted industries. It could be a kind of education program, similar to what we have seen in Depok. They may not realize the risk of polluted water and its damage to their health.

6. Question – At what level do the people understand the problem? They do not have a high level of education.

The answer is the same. The local people do not realize the level of pollution, so they wash their clothes and vegetables in the water. They do have tap water at home, but they lack the awareness.

7. Comment -You mention the challenge of making the local people understand.

Answer – It is not difficult to make the local people feel belonging, but 80% come from another area, so they do not care. We also suggest to have an understanding of the typical culture of the migrant. But, no one is exploring the consequences for the outcome of the migrants and what kind of culture makes them feel belonging to the area.

8. Question - The educational level of the local people in Guangxi Province is split into two groups. The local people don't like the factories, but the poor people welcome the factory because they can work locally. Is it too risky to relax public engagement or should we be more critical?

Answer – First, there is knowledge and second, public engagement. As a planner, I think we need to reach consensus in principle and in practice. I think we have to be careful. It is difficult to achieve consensus. You have to listen and invite people to be engaged, ~~but so~~ we have to be careful of design and control.

End of Working Notes.
30 01 2016