

# **Engineering social risk**

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# Outline

- **Two Cases**
- **1. Social risks of engineering: Two roads to go**
- **2. Bidimensional cognition of engineering's' social risks**
- **3. Public engagement engineering**
- **4. Decoupling reform of industrial association**

# Case Study

- Case One: PX project faces difficulties
- (cities: Xiamen, Kunming, Zhenhai, Dalian)
- Case Two: The Sino-French cooperation project of nuclear cycle faces difficulties

## **Case One: PX engineering in Xiamen**

- The PX project in Xiamen is a p-xylene chemical engineering introduced to Xiamen in 2006. It is known as “the largest-scale industrial project” in Xiamen with an investment of 10.8 billion yuan. The location of it is the Haicang Taiwan investment area in Xiamen and the industrial output will amount to 80 billion yuan per year after it goes into operation. This engineering launched in November 2006 and was expected to go into operation in 2008.

# Citizens Protesting



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**The municipal government sent message to citizens saying this project will be suspended**





# CPPCC Proposals

- The location of PX project is densely populated Haicang Region and the population of the region of 5 kilometers radius exceeds 100,000. The shortest distance between residence and factory is less than 1.5 kilometers. At the same time, the distance from this factory to the very famous tourists destination Gulangyu Island is only 5 km, and the distance to 7 km. So this project encountered much objection.
- In March 2007, 105 members of the national committee of CPPCC signed the proposal to relocate the PX project in Haicang, Xiamen and published it during two sessions.

## **Negotiation Among Many Parties**

- The investors and government focus on the great economic benefit and political performance, while the citizens care most the urban environment and the health of offspring.
- There are many evidence that investors and local government were determined to restart the project, while much more evidence showed that most of citizens opposed this project.

# Public Engagement

- On December 8<sup>th</sup>, Xiamen Online, hosted by Xiamen municipal party committee, opened the voting platform of public engagement to evaluate the environment condition.
- However the vote was suspended the next day and then was dropped on 10<sup>th</sup>. By the end of its closure, there are 55,000 people objecting PX project while only 3,000 supporting it.

# A Letter to Citizens

- On December 13th, Xianglu Tenglong Ltd. (the host of PX project) office published the letter to citizens in Xiamen from Xianglu Tenglong Ltd.
- Here is the letter:1. PX is low in toxin and it will not contribute to cancer or disability, let alone the harm of atomic bomb; 2. Haicang PX project adopted world-leading technology and invested a lot into environment protection, which guaranteed the security and reliability; 3. This project would not threaten citizens' benefits and security. Besides, this company had gone through the environment protection tests and had not exceeded the emission target.

# Public Forum

- On December 13th, Xiamen municipal government launched the most important activity of public engagement– public forum. Major medias such as the Xinhua News Agency, People's Daily, Guangming Daily and local medias were allowed to attend this forum which lasted for four hours.
- Finally it turned out that 40 of the 49 representatives were determined to oppose the PX project and only one people among the eight CPPCC members and NPC members supported to restart it.

# Public Forum



## **The second Public Forum**

- The second public forum was held on December 14<sup>th</sup>. 97 people including citizens representatives, NPC members and CPPCC members attended this forum and 62 of them gave speeches. All the participants, except for 10 speakers, objected the PX project.
- On December 16<sup>th</sup>, Fujian provincial government held a special meeting on PX project and decided to relocate it.

## **Public Engagement engineering**

- The PX project in Xiamen has become a millstone in Chinese democracy but not only a scientific and environment-protection activity, for it demonstrating respect for citizens' idea, democracy and people's livelihood.



# **Traditional Governance models have been Invalid**

- This activity reviewed active engagement of Xiamen citizens which means that citizens have been mature enough and a new era is coming.
- In face of this era and the mature awareness of our citizens, the traditional social governing methods have lost their efficiency.

## **Case Two: The Sino-French cooperation project of nuclear cycle faces difficulties**

- This project happened during July to September in 2016.

# Message from authorities

## Police authority of Lianyungang

- According to Demonstration Law of the People's Republic of China and related regulations, to organize and hold assembly, parade or demonstration without the authority of police institutions are illegal. Currently our police institution has not received any apply for these and we hope that our citizens would not be attracted by such information circling on the Internet, message and We chat. We also hope that citizens would not participate into illegal assembly, parade or demonstration and at the same time not believe or pass on wrong messages or being audience to such illegal activities.

# Photos from the Media



# **More than a Science and Technology Issue**

- Social risks of engineering
- Governance model of engineering

# **New Social Governance Model of Chinese engineering**

- Before: bidimensional model (government-enterprises/companies )
- Now: four-dimensions model (government-industry-enterprises/companies-general public )

# **One : Social Risks of engineering: Reductionism Approach**

- Reductionism refers to that the social risks of engineering will be reduced to economic, ecological and environmental risks, which presents as an would-be effective analysis method.
- The problem of reductionism is that all risks would be decomposed, that is, there would be only economic, ecological, environment or technology risks instead of social ones. From the social appraisal of loan projects in Asian Development Bank, we can see some signs of social risks, for example, the effect of engineering projects on gender and ethnic minority groups.

# Holism Approach

- What is so-called social risks of engineering? The core idea of holism approach is social stability, which might provide us with a basic tool to analyze social risks of engineering.
- Social development is the keynote after reform and opening up, when the premise of development is stability. Sustainable development could be achieved only by developing stably. Development itself is not an end but a method, whereas social progress should be the goal through social stability.



# **Social Stability Risks of engineering**

- What's the reason for social uncertainties? There is something wrong with social acceptability. Before, with accumulative individual acceptance view, we concentrated more on acceptability issues from the perspective of individualism, which means when it's acceptable for the majorities, we believe it would work to the society at large. We won't deny that such approach could be applied to investigate social acceptability, but moreover, investigating social acceptability should be beyond individualism.
- Social acceptability depends on social ethic acceptability to a large extent, where cultural traditions of a society plays an essential role. Therefore, studying and uncovering social ethic acceptability is one of the tasks we are facing.

## **Two:Double Cognitive Dimension of Social Risks of engineering**

- engineering practice is a kind of social practice, which should be regarded as the standpoint or basis of cognitive engineering; besides, the characteristics of engineering practice as a kind of social practice should be recognized.
- Social cognition should be the basic approach of cognitive engineering. Social cognition is a natural cognitive method, which emphasizes the role of empirical method in social cognition. Socialization and naturalization are the basic perspectives in cognizing social risks of engineering.

# Cognition of Socialization

- social cognition (e.g. social empiricism advocated by SSK). Though owning different names or ideas, social cognition, social epistemology and social theory of knowledge share one thing in common: with dissatisfaction based on individual understanding or cognition, they underline “society” as a pivotal dimension of understanding or cognition.
- Cognition of socialization is not only a development direction of cognitive science, but also a new dimension of investigating social risks of engineering.

# Cognition of Naturalization

- In social cognition, another important issue is methodology, which involves the second concept: naturalization. The cognition of naturalization originated from Quine, which is quite controversial.
- The core controversy is whether bonds exist between description and normalization as well as experience and transcendent. Putting those controversies aside, the demonstration spirit underscored by naturalization methodology opens up new horizons for studying social risks of engineering.

## **Three: Public Engagement in engineering**

- Public cognition engineering: previously, we talked much about public cognitive science and ignored engineering. We usually assume that science is the soul of engineering, so understanding science means understanding engineering. However, such view ignores that engineering is a kind of social practice, requiring public engagement.
- With a strong sense of science popularization cognitively, public cognitive science focuses on disseminating and popularizing scientific knowledge to the public.
- The public engagement in engineering we advocate values engagement. The necessity of public engagement is the social practice feature of engineering which could be vanished without public engagement.

# Social Feasibility of Engineering Projects

- Another issue related to the necessity of public engagement is that public engagement endows the social feasibility to engineering projects. Generally the feasibility study of projects refers to expert argumentation, which mainly involves economic and technology feasibilities, at most environment and ecological ones, instead of social feasibility.
- Social feasibility of engineering projects means social reasonability of projects, which lays a foundation for the legitimacy of projects. Previously we used to cover “reasonability” by “legitimacy”, which ignores a fact that for Chinese society which is in transition, institutional improvement with respect to laws and regulations far lags behind social construction, when the situation of “there are no laws to abide by” would last for a period of time.

- From different perspectives, feasibility and reasonability of projects might not be consistent, which means that one engineering might be reasonable and feasible economically and technically, but not socially.
- So how to define social reasonability? What's its difference from social rationality as we often talk about?

## **Four:Decoupling Reform of Industry Association**

- Industry association is now undergoing decoupling reform, shifting from administrative department of government to actor and servant of the market.
- Since implemented in several pilots in 2105, this work achieved great progress, but is still facing plenty of problems .



# Profession and Industry

- Under current circumstances in China, the power of profession needs to be strengthened, let alone the limited effect of professional social organizations in the social governance of engineering.
- Some industries closely related to professions present strong Chinese characteristics and administrative features, which basically replace professions, therefore, combining profession and industry might be one of the reform or development directions in the future.

# **Industry Association Should be Involved in Social Risks Governance of engineering**

- Traditionally, bidimensional model (government-enterprises) played a dominant role in engineering social governance. At present, four dimensional model (government-industry-enterprises/companies-general public) should be the pattern in engineering social governance, among which, industry association should be an important party in governance, instead of simply connecting enterprises and government.
- Industry association participating in the governance of engineering social risks should be one the targets of the current decoupling reform.