



A review on the project appraisal processes for *major* public investments in China

Working paper
The Concept Research Program
NTNU

Wenting Chen

A review on project appraisal processes for *major* public investments in China

Wenting Chen¹

(Please do not cite without authorization from the author.)

Abstract: This article maps formal project appraisal processes for *major* public investments at national level in P.R. China. The scope of the article covers project appraisal processes, document requirements, external valuation, the role of experts, as well as the role of local governments, the public and the political leaders. Project appraisal processes for private investments are also discussed.

Key words: project appraisal, major public investments, quality assurance, regional governments, political influence, public involvement

¹ The Concept research program, Faculty of Engineering Science and Technology, Norwegian University of Science and Technology. Email: wentingc@gmail.com, Phone: +47 99329758

0. Introduction

Project appraisal plays an important role in choosing the right project and is crucial to the final success of public investment projects. The importance of project appraisal raises when the scale of investments increases. Some OECD countries such as Norway, UK and Denmark have their own project appraisal mechanisms for *major* investment projects at either national level or sectoral level. China, as one of the largest and fastest growing emerging economies, undergoes tremendous investments in infrastructure annually. Total investment from central government in fixed assets² amounts to 233 billion USD in 2010, among which 120 billion USD³ were used in transportation sector comparing to 6.6 billion USD in Norway and 1.2 billion USD in the U.S. (Statistics China, 2011)⁴. Large scale public investments carried out in the last two decades ranges from the west-to-east gas and power transmission, south-to-north water diversion to construction of Olympic Venues and National Museum. The scale of the investments and their important contribution to the economic growth make public investment projects in China particularly interesting to study.

Moreover, China has experienced many economic reforms since 1978 when the concept of market economy was introduced. Transition from the planned economy to the market economy has been carried out gradually in the last thirty-four years. Although capital markets are still under the control of the central government, the central government has granted more decision rights for investment to private sectors since 2003 before which both public and private investments had to be evaluated and approved at project level. Today funding for infrastructure projects comes from various sources such as central and local government budgets, private sectors as well as foreign direct investments. According to

² Details of components in fixed assets refers to <http://www.stats.gov.cn/tjsj/ndsj/2011/indexeh.htm>.

³ In order to be comparable to statistics from Norway, investment in air transportation is not included in the 140 billion USD for transport sector in China.

⁴ Investment in transport sector in the US is done by both federal government and states. Federal investment only counts very small part of total investment in the sector. States investment in transport sector reached 103 billion USD in 2011.

Statistics China (2011), 4,7% of the total fixed asset investment⁵ comes from state budget and 15,2% comes from domestic loans. The rest of the investments are funded by foreign investments and by domestic private sectors. Many projects were financed by a combination of different funding sources. For example, investment cost for the Olympic Venue in 2008 amounts to 432 million USD, among which 51% is funded by state budget and the rest is funded by government bonds and private funds. For public investments, particularly the mega projects, preference of political leaders still plays an important role in the initiation of the projects.

Meanwhile, environment and public involvement have been placed more and more important weight. The Chinese Environmental Impact Assessment (EIA) Law issued in 1 September 2003 requires comprehensive environmental reviews in the planning stages of major public and private development projects. The EIA law also requires public involvement in major investment projects. Information on public involvement in earlier project appraisal process is still limited. Some municipalities such as Shanghai has tried to build institutions to facilitate public involvement in project appraisal process.

The goal of this study is to map project appraisal process and quality assurance schemes at national level for both *major* public investments in China. Major public investment is defined as projects with total public investment cost larger than 5 billion yuan (about 0,8 billion USD) if sovereign bonds used are redeemed by the State. If the sovereign bonds are redeemed by local governments or the projects, the threshold for qualifying a *major* project raises to 50 billion yuan (about 8 billion dollar) (NDRC, 2004)⁶. The national level projects are those cover multi-regions, multi-river basin and has significant impact on social and economic development. One famous example is the South-to-North water diversion project which is

⁵ Refer to footnote 2.

⁶ The threshold is about 1 billion yuan (about 0,18 billion USD) according to interview with China Investment Bank (2012). No distinguish seem to be made between how sovereign bonds are redeemed.

the largest water transfer project in the world up to now. The project plans to divert water from the Yangtze River (South) to the Yellow River and Hai River (North) to alleviate the water shortage in the Northwest and North China. Three main routes located in the west (upper reach of the two rivers), mid (middle reach of the two rivers) and east China (lower reach of the two rivers) will be built.

Research questions answered by the paper include how *major* public investment projects in China, are proposed and appraised before approval and implementation of the project; what measures are taken to ensure quality at the entry stage before the projects are approved, what kind of documents are required during the application process for the public financing, what are the roles of regional governments, experts, the general public and the political leaders respectively in the process. Information is obtained both from government websites and project sites, personal interviews with personnel from the China Development Bank, as well as public media.

Our findings show that project appraisal processes differ according to funding sources and scale of projects. Funding sources of government investment include direct government investment, capital injection, government and sovereign bonds, government subsidy and interest subsidy. All *major* public projects with government funding in the form of direct government investment and capital injection need approval of three ministries for project documents including project appraisal, feasibility study and project design. The three ministries are NDRC , the Ministry of Environmental Protection (MEP) and the Ministry of Land and Resources (MLR). All the three parties have the veto right during project approval. MEP will focus on the environmental design as well as EIA. MLR will be responsible for monitoring the land use change. NDRC will be responsible for all the other aspects of project evaluation. If all the three ministries pass the projects, they will be given to the State Council

for final approval⁷. Projects with other types of government funding only need to get funding application approved. Consulting companies authorized by NDRC will be responsible for external evaluation for project documents submitted to NDRC. Experts will be involved in the external evaluation together with the authorized consulting companies. Political leaders are found to play a decisive role in project initiation for mega projects such as the South-to-North water transferring project, while normal large scale projects are initiated by local governments. As private sectors gained increasing decision rights for their own investments after the reform in year 2003, government approval process for pure private investments had been simplified. Only *major* private investments and specially listed projects need approval from NDRC, mainly for evaluation of macro-level effects of the projects. No approval from the State Council is needed.

The paper is organized as follows. Section 1 provides a general overview of government investments in China. Section 2 discusses documents required during the project appraisal for public investments and decision making process for all public investments at national level. Section 3 presents quality assurance for *major* public investments and requirements from the Guideline of Investment Project Feasibility. Section 4 investigates the role of regional governments in project appraisal. Section 5 discusses the role of experts in the process of project appraisal. Section 6 looks into the public involvement in early decision making during project appraisal. Section 7 explores project appraisal for investments done by private investors. Section 8 concludes.

1. Government investments in China

Government investments play an important role in adjusting macro economy and promoting sustainable development. About 20% of total fixed asset investments in China are done by

⁷ Smaller size public investments with government funding in the form of direct government investment and capital injection only need to be approved by the regional development commissions. There is no need for approval from the State Council.

governments which include both state budget and domestic loans (Statistics China, 2011).

According to *The Regulation on Government Investments (Draft)* issued by the State Council in 2010, government investments are defined as infrastructure investments financed by Chinese governments and occurs within Chinese jurisdiction territory. The objective of government investments is to increase employment, and to improve public services so that economic structure upgrading and sustainable development of the society could be achieved. The Regulation draft states clearly that government investment should only be used in areas where market cannot efficiently allocate economic and social resources. These projects should promote non profitable public service and public infrastructure provision, ecosystem and environment protection, stimulate the development of the less developed regions, and facilitate R&D. Investments that could be done by private investors should be left to private sectors.

According to *the Regulation on Government Investments (Draft)*, government investments come from two sources, the state budget and domestic loans. They could be in the form of direct government investment, capital injection, investment subsidy, government and sovereign bonds, and interest rate subsidy for loans through government owned banks. Different types of government funding apply to different types of projects (State Council, 2010). Details about what types of funding are applied in which sector are left for future study.

Direct government investment

For non-profit public infrastructure projects which require a dominant role of the government, investment can be done through direct government investment. The investment always belongs to the State.

Capital injection

Capital injection will be used when projects may have significant impacts on the domestic economy and have other strategic importance. The main form of capital injection is stocks. For projects that will generate profit themselves but need government funding to cover part or all of their investment, the State will carry out investment through purchase of stocks of the project. The Government is then the owner of those stock shares.

Government subsidy

Projects that need government support could apply for government subsidy. The government subsidies have two types, grants and additional paid-in capitals. For non-profitable projects, government subsidy is a grant and will be delivered for free. For projects that generate profits, government subsidy is given in the form of additional paid-in capital or capital surplus. Different from a grant, premium should be paid on the additional paid-in capital/capital surplus.

Government and sovereign bonds

Chinese government bonds are bonds issued by the Chinese government in Chinese currency Yuan. Bonds issued by national governments in foreign currencies are normally referred to as sovereign bonds. When projects contribute to economic and social development and could promote regional development nationwide, government and sovereign bonds could be used to support these projects. Sovereign bonds can be returned by the State or by local governments or projects.

Interest rate subsidy

The last type of government investment channels through interest subsidy via bank loans. Although the Chinese banking system has undergone significant changes in the last two decades, the banking industry still remains in the hands of government. All domestic banks are owned either by the state or by local governments. The largest four commercial banks in

China are all state owned. They are the Bank of China, the China Construction Bank (CCB), the Agricultural Bank of China (ABC), and the Industrial and Commercial Bank of China. CCB only provides medium to long-term credit for long term projects, such as infrastructure and urban housing projects. ABC provides financing service to the agricultural sector such as farmers, township and village enterprises and other rural institutions. There are also new 'policy' banks such as the Agricultural Development Bank of China and China Development Bank which were established in 1994. The former provides funds for agricultural development projects in rural areas while the latter specialized in infrastructure financing.

2. Project appraisal for *major public investments in China*

According to *the Regulation on Government Investments (Draft)*, all government investments should go through a formal project appraisal process and obtain approval from the government. Appraisal processes differ according to the funding sources and size of projects. This section will first discuss the documents need for project evaluation for *major public investments* and then discusses project appraisal processes for these public investments.

2.1 Documents need for major public investment project evaluation

Documents need for evaluation of all types of public investments include project proposal, feasibility study, primary design and application for government funding. Different documents are required depending on what kind of funding sources the projects use. We first explain the documents required for evaluation process and then discuss different document requirements according to funding sources.

2.1.1 Project level documents needed for evaluation

Project proposal

The project proposal should state the importance of the project, location size, estimation of investment need, fund raising and primary social and economic impacts analysis. The proposal should be made by those certified consulting companies. Quality of the proposal is assumed to be guaranteed.

Feasibility study

The feasibility study has to be carried out by the certified consulting companies. The certificates are granted by NDRC or other relevant ministries depending on which sector the project belongs to. In general, the following questions have to be answered by a feasibility study:

A. Whether the project is technically or economically necessary, reasonable, and feasible?

B. What are the impacts of the project on the whole society, on energy saving and resource use, as well as on biodiversity and environment so as to secure future operation and construction?

The approved feasibility study provides a base for project construction and the primary design. During the evaluation process, external evaluation of the feasibility study and project proposal is needed for *major* projects.

Primary design of the project

Primary design of the project should also be carried out by certified companies.

Application for government funding

When investments involve the following forms of government funding sources such as sovereign bonds, government subsidy and interest rate subsidy, an application for government funding is needed. The application should be approved by the NDRC. The

funding application should include basic information of the project and the company which is responsible for the project, reasons for applying government funding, and other financial sources involved.

2.1.2 Document required for different funding sources

Approval for project level documents is required during appraisal of public investment projects. The project level documents needed vary with funding sources. (State Council, 2010). For projects funded by state budget and direct capital injection, documents such as project proposal, feasibility analysis, and primary design of the project should be handed in to NDRC as well as MEP and MLR for approval. For projects funded by government subsidy, government and sovereign bonds and interest rate subsidy, only application for government funding is needed. Different rules will apply if the size of funding exceeds certain limit. That is, if projects have subsidy larger than 2 billion yuan (317 million USD), or obtain the amount of state investment subsidy between 30 million and 2 billion yuan (4,75 -317 million USD) and the state subsidy share exceeds 50% of the total investment (NDRC, 2005), the projects will be regarded as been funded by state budget or by capital injection. The three project level documents are required.

2.2 *The Guideline of Investment Project Feasibility*

Under the direction of NDRC, China International Engineering Consulting Corporation (CIECC) issued the Guideline of Investment Project Feasibility in 2002 to facilitate and standardize the feasibility analysis for infrastructure and technology upgrading projects in the fields of industry, transportation (railway, road, harbor, airport), agriculture, aquaculture and irrigation systems, as well as for infrastructures within municipalities (subway and other public infrastructures). CIECC is a state owned certified consulting company established in 1986 and was previously affiliated to the National Audit Office. The business for CIECC

ranges from consulting service for project proposal, feasibility study, support for application for government funding, planning and impact study for industries such as energy, transportation infrastructure, public buildings, defense, agriculture, information and communication both within and outside the country. The company is also one of the companies who are authorized by NDRC to evaluate the project level documents for *major* public investments. They also provide macro policy and planning analysis for regional development domestically and individual industry as well as advice for project management and engineering. The main clients are governments, domestic and foreign development and construction banks, state owned companies and foreign enterprises.

The Guideline is written by domestic researchers and practitioners together with external specialists from Department for International Development (DFID) in UK. It is not only applicable to public investment projects, but also investments done by enterprises or by individuals. In reality, the guideline has provided a basic tool for feasibility study for both public and private investment projects. BOX 1 highlights the contents of the Study.

BOX 1 the Guideline of Investment Project Feasibility

The Guideline was approved by NDRC and was issued in 2002. According to the Guideline, a feasibility study should provide analysis of the following categories: the general discussion of the need of the project, market forecast, evaluation of natural resource use, construction size and the product outcome, location choice, technology, equipment and construction alternatives, supply of raw materials and fuel, transportation and supportive infrastructures, environmental impact analysis, health and safety, institutional arrangement, construction timeline, analysis of potential financing sources, cost-benefit analysis, macro economic impact analysis, social impact and risk analysis, risk reduction measurements, conclusion based on a final comparison of different alternatives. Table 1 provides further details for each category.

Table 1: Detail requirements for the Guideline of Investment Project Feasibility

<p>General discussion of the need of the project</p> <ul style="list-style-type: none"> • Purpose of the project • Expected goal to be achieved • Basic requirements for construction 	<p>Market forecast</p> <ul style="list-style-type: none"> • Market forecast • Investigation of current market situation • Demand and supply forecast of products provided by the project • Price forecast • Analysis of market competition and risk
<p>Evaluation of natural resource use</p> <ul style="list-style-type: none"> • Basic requirement for resource exploitation and utilization • Evaluation of the resource 	<p>Construction size and the product outcome</p> <ul style="list-style-type: none"> • Comparison of alternatives in terms of construction size and product output
<p>Location choice</p> <ul style="list-style-type: none"> • Basic requirements • Comparison of the alternatives 	<p>Technology, equipment and construction alternatives</p> <ul style="list-style-type: none"> • Alternatives comparison • Water and energy saving measures

BOX 1 (Continue) the Guideline of Investment Project Feasibility

Tabel 1(continue): Detail requirements for the Guideline of Investment Project Feasibility

<p>Supply of raw materials and fuel</p> <ul style="list-style-type: none"> • Source of supply • Comparison among alternatives 	<p>Transportation and supportive infrastructure</p> <ul style="list-style-type: none"> • Internal and external transportation plan • Plan for supportive infrastructures
<p>Environmental impact analysis</p> <ul style="list-style-type: none"> • Basic requirements • Investigation for environmental condition • Environmental impact analysis • Environment protection measures 	<p>Health and safety</p> <ul style="list-style-type: none"> • Working place health and safety • Fire prevention measures
<p>Institutional arrangement</p> <ul style="list-style-type: none"> • Description of institutional arrangements and its adaptivity analysis • Human resource arrangement • Vocational training 	<p>Construction timeline</p> <ul style="list-style-type: none"> • Total time need • Progress timeline
<p>Investment analysis</p> <ul style="list-style-type: none"> • Construction investment estimation • Operating cost estimation • Total project investment and annual investment plan 	<p>Analysis of potential financing sources</p> <ul style="list-style-type: none"> • Alternatives for financing source and choice • Source for capital and debt raising
<p>Cost-benefit analysis</p> <ul style="list-style-type: none"> • Estimation of sales income and cost for new and existing projects • Uncertainty analysis • Analysis for non profitable projects 	<p>Macro economic impact analysis</p> <ul style="list-style-type: none"> • Identification of macro economic benefits and costs • Choice and calculation of shadow price • Indicators for national economic behavior
<p>Social impact analysis</p> <ul style="list-style-type: none"> • Range and implication • Steps and methods used 	<p>Risk analysis</p> <ul style="list-style-type: none"> • Risk factor identification • Risk analysis methods • Risk reduction measures
<p>Recommendation and conclusion</p>	

The Guideline is divided into two parts, the first part introducing the methods and analysis required for a feasibility study and the second part providing the steps of evaluation and check lists for eleven individual sectors. In general a feasibility study should include evaluations both at project level and at macroeconomic level. The project level evaluation covers designs and plans for projects as well as their financing feasibility. Evaluation at the macroeconomic level includes project impacts on macro economy and on sustainable development. Analysis of environmental impacts and health& safety should also be included. In addition, the Guideline also provides detailed methods on cost-benefit analysis, risk analysis, market and transportation forecast.

2.3 Project appraisal for major public investments ⁸

Project appraisal process for public investment projects at national level depends largely on the central government. Compared to other countries such as Norway, central planning plays a very important role in the Chinese system. Appendix 1 provides a short description of the government structure in China. Figure 1 shows the hierarchy of the primary organs of state power. And Figure 2 illustrates the appraisal processes for *major* public investments.

As shown in Figure 2, the process starts when the National Development and Reform Commission (NDRC), one of the ministries directly under the State Council, makes a blueprint for public investment projects nationwide together with their regional counterparts, Regional Development and Reform Commissions at provincial levels. General requirements are set for future investments according to national needs and the target of economic growth. The plan covers public service, infrastructure and civil affairs. Regional Development and Reform Commissions at provincial levels then propose concrete projects that need financial support from the State. The proposed projects must be consistent with the blueprint. During

⁸ The description of the project appraisal process for major public investments is partly based on personal interview with Section director of the Plan Department , China Investment Bank.

the process, certified consulting companies will be hired to write project proposal, feasibility analysis and the primary design for the proposed projects. The certificates are issued by NDRC.

Given the importance of the projects, three ministries, NDRC, MEP and MLR, are responsible for reviewing and screening all these proposals and required documents for each project mentioned above. MEP will take responsibility of environmental design of the projects and their environmental impact. MLR will focus on the land use change and monitor whether the land use change follows the regulation. 46 authorized companies will carry out independent reviews on the project proposal, feasibility study and the primary design on behalf of NDRC. The 46 authorized companies are listed in NDRC (2009). Experts are usually invited by the external companies to evaluate the project documents together. Further details will be discussed in the section 3. Public opinion in principle should be included in the evaluation decision of the projects. Section 4 further discusses the public involvement issue.

Detailed criteria for internal screening are not officially released and are assumed to be based on multiple factors including the strategic importance of the projects. The Commission will make a list of preferred projects and eventually hand it in to the Ministry of Finance and other relevant ministries. The NDRC, the Ministry of Finance and other relevant ministries will discuss the list of the favored projects, independent evaluations for *major* projects and adjust the list together. After the meeting, a final project list will be formed. Together with project level documents, the final project list will be handed in to the State Council for final approval. The State Council then makes the final decision on whether to launch the project or not.

3. Quality Assurance during project appraisal

As mentioned in section 2.3, NDRC authorizes independent companies to evaluate the project documents handed in by regional governments. The Ministry of Environment Protection plays an increasing important role in project approval along with NDRC and has the veto right for project approval. For *major* public investments, experts in the relevant fields of the projects will also involve in the evaluation together with the authorized companies. It is common that experts are invited to the evaluation meetings by the authorized companies to evaluate the project documents together.

3.1 External independent evaluation by NDRC authorized companies

As mentioned in section 2, an independent evaluation of the project level documents will be carried out by one or several of the 46 companies authorized by NDRC. CIECC is also one of these companies and is the only one that could evaluate projects in all fields. The rest of them could bear evaluation task in 1 to 3 different fields. It is possible that some of the 46 companies are also certified consulting companies that could write project level documents. It is required that the company who is responsible for writing project proposal, feasibility analysis or primary design should not be carry out the evaluation of these documents for the same project (State Council, 2010). The independent evaluation of feasibility study also follows *the Guideline of Investment Project Feasibility*.

3.2 Role of the Ministry of Environment Protection (MEP)

Pollution and other environment related problems have caused increasing attention in China. Since the Chinese Environmental Impact Assessment (EIA) Law issued in 2003, the Ministry of Environment Protection has been granted more rights to participate the approval process for projects that have significant environmental impacts. In principle, the Ministry has the

veto right during the project approval if the project causes devastating environmental effects. However, the power of the Ministry is still limited in practice.

3.3 Role of experts in independent external evaluation

Experts involve the project appraisal in the phase of external evaluation of project documents handed in by regional governments (State Council, 2010).

Their evaluations together with views from the authorized company play decisive roles in the final choice of projects. The choice of experts are defined by *The Regulation on Management of Expert Evaluation during Government Purchase* which was issued and put into effect by the Minister of Finance and National Audit Office on 17 November 2003. According to the Regulation, those who have the relevant expertise could either suggest themselves or be suggested to the government. The general requirements are high education in the required field and have minimum eight year relevant working experience. Lists of experts will be stored in an expert database. Appointment of relevant experts for a particular project is random from a specific field in the expert tank. Any company and individuals are not allowed to intervene the expert appointment process. The appointed experts will attend the work independently and accept monitoring from the government. There is no age limit for the expert. This implies retired researchers and specialists could also apply.

Although experts in general play an positive role in project evaluation by providing their expertise, they in cases may prolong the appraisal process. One example is high speed train between Beijing and Shanghai. It took 10 years before the final decision of the project was made in 2007. The Ministry of railway finished the feasibility evaluation for a high speed train between the two major Chinese municipalities and was waiting for a formal proof from the State Council in 1997. The new government which came into office the same year

proposed another alternative, a magnetic rail project. Experts who supported and opposed the magnetic rail project launched heated discussions in the next ten years. Experts also had split views on whether the high speed train should be built at all in China. Those who were pro the high speed train focused on efficiency and low emission the new system brings, while those who were against concerned purchasing power of poor migrant workers and the limited advantage new rails have compare to the existing rail system since the high speed rails only save travel time significantly within 500 km distance. When the travel distance is longer than 1000 km, plane will be the only choice. China covers large areas and long distance high speed railways are less likely to be profitable (Nfpeople, 2011).

4. The role of regional governments

Provincial level governments involve both local investment financing and project appraisal for national scale investments. On one hand, large amount of investments are done by regional governments. For example, 60% of investment in transportation sector was financed by regional governments, and only 40% came from the state budget of the central government in 2010 (Statistics China, 2011). Under the current fiscal system, regional governments have fiscal incentives to provide financial support to local infrastructure projects to pursue local prosperity. The current fiscal system in China is a “separating tax system” which was established in 1994. Local revenue is defined as revenues from local taxes. The major sources of local taxes are the income taxes from all enterprises, business tax, and sales of services and personal income tax (Jin et al., 2005). Infrastructure investments play an important role in regional economic growth and productivity improvement (e.g. Morrison and Schwartz, 1996; Lau and Sin, 1997), hence local governments have strong incentives to support these investments. This in practice reduces the burden of the central

government and increases the project sustainability as local government has more resources and is more flexible in managing the regional projects.

On the other hand, regional governments could apply for the state budgets available and play an important role in project appraisal process for national level investments. Although administration power is concentrated at the central government in China, central government leaders must frequently build consensus for new policies among local and regional leaders. During the project appraisal, provincial level Development and Reform Commissions will first cooperate with the NDRC to make the national level blueprint. Then these regional level Commissions are responsible for proposing projects needs funding from the state budgets based on regional needs according to State Council (2010) and a personal interview with senior director at the Plan Department in the China Development Bank, Regional Development and Reform.

5. The role of the public

Public involvement has been stressed in several laws and regulations in terms of investments. *Regulation on Government Investments (Draft)* requires all projects that may have significant impacts on economy, social, environment and the public should have public hearing or NDRC should consult the public opinion during the decision making.

The Decision on reform of the investment institutions issued and implemented by the State Council in July 2004 also urges all levels of governments to keep the appraisal process for investments carried out by cooperates transparent to the public. Periodical report to the public is demanded (State Council, 2004).

Another example is *The Chinese law on public appraisal* which was issued by the Standing Committee of the National People's Congress on 27 August 2003 and was put into effective

on 1 July 2004. The Law provides principles for public appraisal in all sectors in the country. According to Clause 19, public hearing should be arranged before local governments implement a new public appraisal scheme or regulation within their administrative regions (The Standing Committee of the National People's Congress, 2003).

However the transparency of the project appraisal process in practice is still in progress and is a dynamic issue in China. Practices vary with projects. Our knowledge on the practices is still limited and could only provide a rough description of the situation. Comprehensive review will be left for future study.

The first success of public participation may trace back to construction of the biggest dam projects in the world on the Nu River in Yuannan Province, Southwest of China . The Nu River ("Angry River" in English), careers out of the Tibetan Plateau east of Himalayas and plunges through steep canyons inside the border with Myanmar before rushing across Chinese border. In China, it passes through a mountainous region with more than 7000 species of plants and 80 rare or endangered animals and fish (Yardley, 2005). The proposed hydroelectric dams may also force a relocation of up to 50,000 local indigenous people (Watts, 2011). Since 2003, the plan has been opposed by many in downstream countries and prompted concerns from the UN heritage body Unesco that the dams could endanger the heritage site that "may contain the most biologically diverse temperate ecosystem in the world" (Yardley, 2005, South China Morning Post, 2009). The China Environmental Impact Assessment (EIA) Law issued in 1 September 2003 requires comprehensive environmental reviews in the planning stages of major public and private development projects. The China EIA Law not only gave the environmental agency new powers to handle and approve environmental reviews before a project was approved, but also called for public participation, including hearing although no detailed guidelines are provided. The controversy of the Nu

River attracts interest worldwide. More importantly, it had raised campaigns from hundreds of volunteers and several environmental groups in China. Biologists and academics and environmentalists all urge the government conduct an environmental review before making the final approval (Yardley, 2005). In the winter of 2003, the project plan was temporarily halted by Prime Minister Wen Jiabao on the ground of environmental impacts. Authorities were suggested not to resume the plan until its impact on the ecology and local communities was fully understood. Until then, the Nu dam projects had been hailed as the first successful public participation in China. The environmental assessment report was finished in the summer 2005. However, the reports were not published according to Yardley (2005). Recent information has indicated that hydropower industry has overcome the political and environmental obstacles. The construction plan of a series of 13 dams on the middle and lower reaches of the river has been included in the 12th national Five-Year Plan period (2011-2015) (Watts, 2011).

Public involvement in decision process for major infrastructure investments is assumed to be more active at the provincial level. However, it is still a very sensitive topic domestically. One of the examples is the decision high speed train. The decision making process for the high speed train has been criticized not to be transparent to the public (Nfpeople, 2011). A magnetic levitation rail route was planned to link the cities of Shanghai and Hangzhou. Concerns among residents that the trains would emit radiation raises fears of the local population about the project. Thousands of residents living along the proposed route had been petitioning for a suspension of the project, and exerted huge pressure on the local municipal government in Shanghai (USA today). The plan was alleged to be shelved later on partly due to the reaction from the local residents.

The section concludes that requirements have been put into regulations for public involvement in early project appraisal proposal. The implementation of these requirements is still in progress.

6. Role of political leaders: South-to-North water diversion

Not all the projects follow the standard project appraisal process demonstrated in Figure 2. Political leaders have more influence in some projects than the others, particularly when the projects are very large. The concepts of mega projects such as the Three Gorgeous Dam and the South-to-North water diversion project were both proposed by political leaders. As Three Gorgeous Dam were funded by user fee, the section only use South-to-North water diversion project as an example. Figure 3 presents the appraisal processes influenced by the political leaders. All the information on the project is obtained from the official web page of the project⁹.

The Yangzi River and the Yellow River are the two longest rivers in China. Both rivers start from the west part of the country and flow across the nation toward the east. The Yellow River is located in the North of China while the Yangzi River is located in the middle of China. The concept of diverting water from the the Yangzi River to the Yellow River was proposed by Mao Zedong in 1952 as a measure to the insufficient water supply in the Yellow River basin. during his visit at the Yellow River. A primitive investigation on the possible diversion route was carried out in the late half of the year. In 1974 a model of “Dan jiang kou” dam in the upper reach of the Yangzi River was presented. The dam was regarded as a first step to transfer water from the Yangzi to the Yellow River. A group of national and international experts investigated the mid route and the east route of the water transferring in 1980. The group concluded both the mid and the east route were technically feasible.

⁹ www.nsb.gov.cn

They also suggested the effects of the project on economic and environment need further study. The State Council accepted the project concept and incorporated part of the east route of the water transfer projects into the ten year plan in 1982.

An integrated plan for all the three routes, prepared by the former body of NDRC, the State Planning Commission, and the Ministry of Water Resources, was passed by the State Council in 2002. Feasibility studies and project designs for subprojects were prepared by the local governments and were evaluated by both experts and CIECC. Comments and suggestions were usually given by experts and CIECC to local governments to revise the feasibility studies and project designs for sub projects. This type of interaction between experts & CIECC and local governments reduce the risk of sub projects given that the integrated plan had been passed.

7. Project approval for investments done by private sectors

Before year 2004, both public and private investments need approval for project proposal, feasibility study and primary construction plan. The process has changed since a reform decision on the investment institution introduced by the State Council (State Council, 2004). The reform decision which was put into effect in July 2004 lifted the requirement for government approval for major infrastructure investment projects at corporate or firm level. The Decision applies to those investments that do not use government budgets. The main goal of the reform is to reduce the inefficiency created by too much government engagement in the fields where markets could regulate themselves. The decision process is presented in Figure 4. According to the Decision, investments carried out by cooperates no longer need proof from the government for project proposal, feasibility reports and construction plan. Projects which is under a list of major projects specified in the end of the Decision need to send application to either regional or national governments. The list of major projects covers agriculture, energy, transportation, information, raw materials, machinery and automobile,

chemical industry, high technology, civil and cultural industry, finance and foreign direct investments. The government will evaluate the investments at more macro level such as the impacts of the investment on economic and public safety, resource use, biodiversity protection, integrated planning, and prevention of monopoly in certain markets. Enterprise investments fall out of the list only need document the investments at local government agencies.

There are different rules applying to foreign investments. Details please refer to the *Interim Management Measures for Project Appraisal for Foreign Investments* issued by NDRC on 9 October 2004. The Interim Measure is not covered by the study.

8. Conclusion

China's fast growing economy, its large amount of public investments and its transition from planned economy to market economy have made the country particularly interesting to study. Project appraisal processes for both *major* public investment projects at national level are explored. Our study finds that all *major* public investments need to be evaluated at project level. Three types of documents at the project level, the project proposal, the feasibility study and the primary design of the project, have to be approved by the National Development and Reform Commission, the Ministry of Environment Protection, the Ministry of Land and Resources, and the State Council. The three types of documents must be written by certified consulting companies. External independent evaluations for project level documents should be carried out by companies authorized by the National Development and Reform Commission. Experts involve the appraisal process during the phase of the external independent evaluations. The study also finds that public involvements in the early decision making phase for project appraisal is still progressive. Political leaders have strong influence on initiating project concept in some projects. As market economy in China became

more mature, the importance of the government in private investment decision has been declining since 2003.

The study focuses mainly on description of the formal processes for project appraisal for *major* public investments in China. We still have very limited knowledge on how the processes are applied in the reality. One direction of the future research is to collect more data at project level and to see how the formal processes are implemented. Another direction of future research is to compare the case in China with other countries such as Norway.

I thank Section Director of the Plan Department at the China Development Bank, Xiang Hongmin for useful discussion on project appraisal for major project investments in China. I thank Den Norsk Veritas Beijing office for providing us relevant materials and quality assuring the content of the study. Gratefulness is also attributed to Tom Christensen at the University of Oslo, Erling Andersen at the Norwegian Business School, Gro Volden and Knut Samset at the Concept program in the Norwegian University of Science and Technology for their valuable comments.

References

China Development Bank (2011), Interview

China International Engineering Consulting Corporation (CIECC) (2002), *The Guideline of Investment Project Feasibility Study*, China Electric Power Press

Facts and Details (2011), "Infrastructure in China: bridges, large projects and bean curd construction", <http://factsanddetails.com/china.php?itemid=326&catid=13&subcatid=84>

Jin, Hehui, Yingyi Qian and Barry R. Weingast (2005), "Regional decentralization and fiscal incentives: Federalism, Chinese style", *Journal of Public Economics* 89:1917-1942

Lau, Paul, and Sin, C. "Public Infrastructure and Economic Growth: Time Series Properties and Evidence." *Economic Record* 73: 125-135

Laursen, Thomas and Bernard Myers (2009), "Public Investment Management in the New EU Member States: Strengthening Planning and Implementation of Transport Infrastructure Investments", the World Bank Working Paper No. 161

People's Daily (2000), "Massive investment in infrastructure to reinforce economic growth".

Ministry of Finance and National Audit Office (2003), *The Regulation on Management of Expert Evaluation during Government Purchase*.

Morrison, Catherine J. and Schwartz, Amy E. (1996), "State Infrastructure and Productive Performance." *American Economic Review* 86:1095-1111

NDRC (2009), *The list of consulting companies which are authorized to evaluate project level documents*, the NDRC Notice nr 14.

NDRC (2005), *The interim measure for management of projects subsidized directly by state budget or interest return*.

NDRC (2004), *Management Measures for Project Appraisal for Foreign Investments*.

NDRC (2004), *Notice on the list of infrastructure investment projects which require approval of the State Council (Trial)*.

Nfpeople (2011), "The shadow under the high speed", <http://www.nfpeople.com/News-detail-item-1438.html>

State Council (2004), *The Decision on reform of the investment institutions*

State Council (2010), *Regulation on Government Investments (Draft)*

Statistics China (2011), Fixed Asset Investment, <http://www.stats.gov.cn/>

The Standing Committee of the National People's Congress (2003), *The Chinese law on public appraisal.*

The Central People's Government of P.R.C (2012), *Ministries and Commissions under the State Council*, http://english.gov.cn/2005-08/05/content_20741.htm

USA Today (2007), "Radiation fear derails Chinese train plan",

http://www.usatoday.com/travel/news/2007-05-26-chinatrain_N.htm

Watts, Jonathan (2011), "China's big hydro wins permission for 21.3 GW dam in world heritage site", *The Guardian*, Guardian.co.uk., 1 February 2011
Wikipedia (2012), *Politics of the People's Republic of China*

Yardley Jim (2005), "Seeking a Public Voice on China's 'Angry River'", *New York Times*, December 26

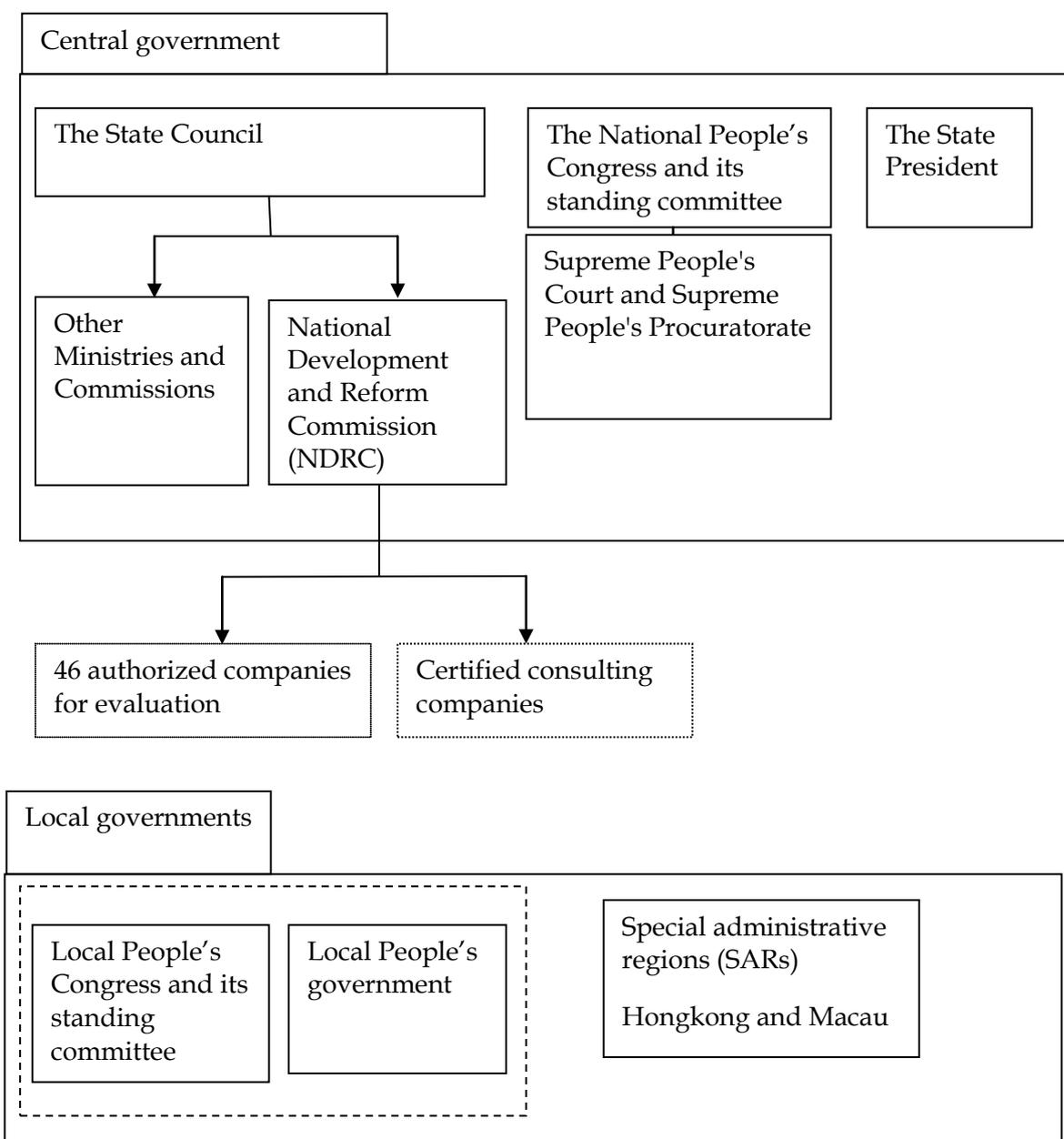
Appendix 1: Chinese government structure at national level

The State Council, the National People's Congress (NPC) and the President are three primary organs of state power. According to the Chinese constitution, the NPC has the highest state power, while the State Council is a functional center of state power and clearinghouse for government initiatives. There are 27 ministries and commissions under the State Council. Each ministry or commission supervises one sector (The Central People's Government of P.R.C, 2012). These ministries and commissions are listed below.

Table 2: Ministries and Commissions under the State Council

National Development and Reform Commission	National Population and Family Planning Commission	State Ethnic Affairs Commission
Ministry of Foreign Affairs	Ministry of National Defense	Ministry of Science and Technology
Ministry of Supervision	Ministry of Public Security	Ministry of State Security
Ministry of Finance	Ministry of Civil Affairs	Ministry of Justice
Ministry of Environment Protection	Ministry of Human Resources and Social Security	Ministry of Land and Resources
Ministry of Transport	Ministry of Housing and Urban-Rural Construction	Ministry of Railways
Ministry of Agriculture	Ministry of Industry and Information Technology	Ministry of Water Resources
Ministry of Health	Ministry of Commerce	Ministry of Culture
National Audit Office	Ministry of Education	People's Bank of China

Figure 1: Hierarchy of the primary organs of state power



Data source: <http://www.cecc.gov/pages/virtualAcad/gov/statestruct.php>

Figure 2: Project appraisal for major public investment projects

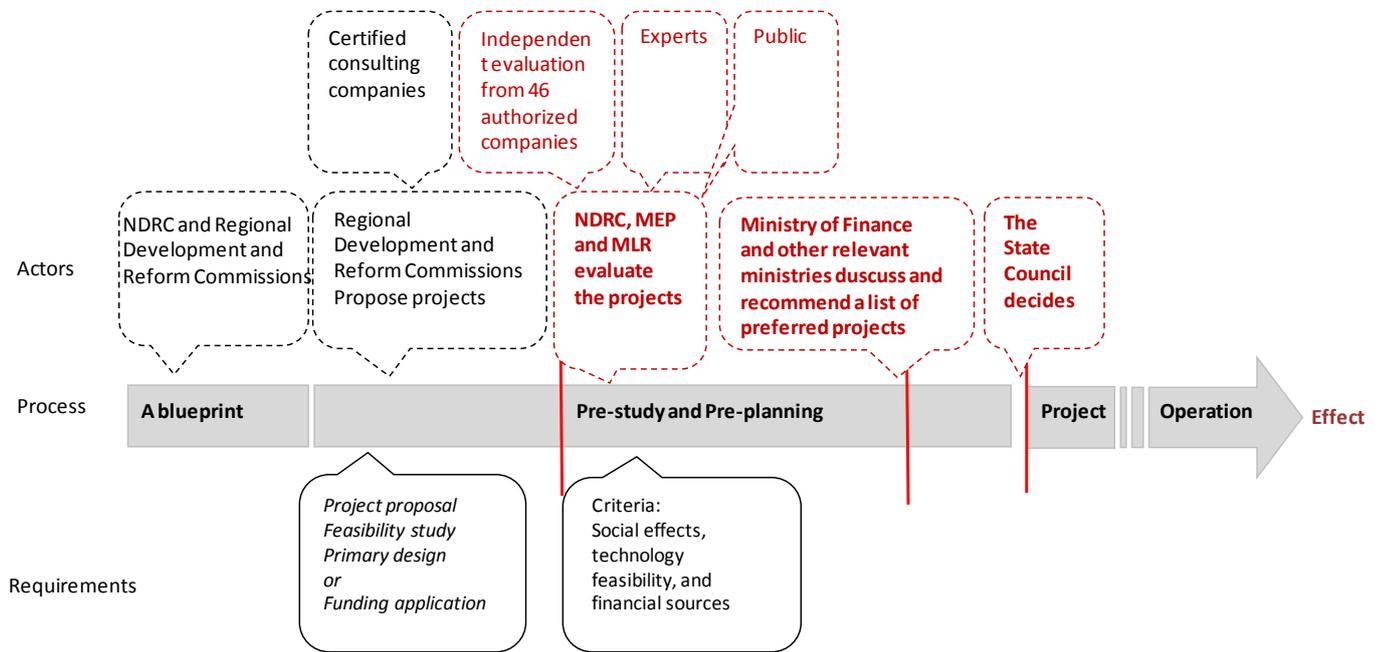


Figure 3: Project appraisal for projects influenced by political leaders: the South-to-North Water Diversion project

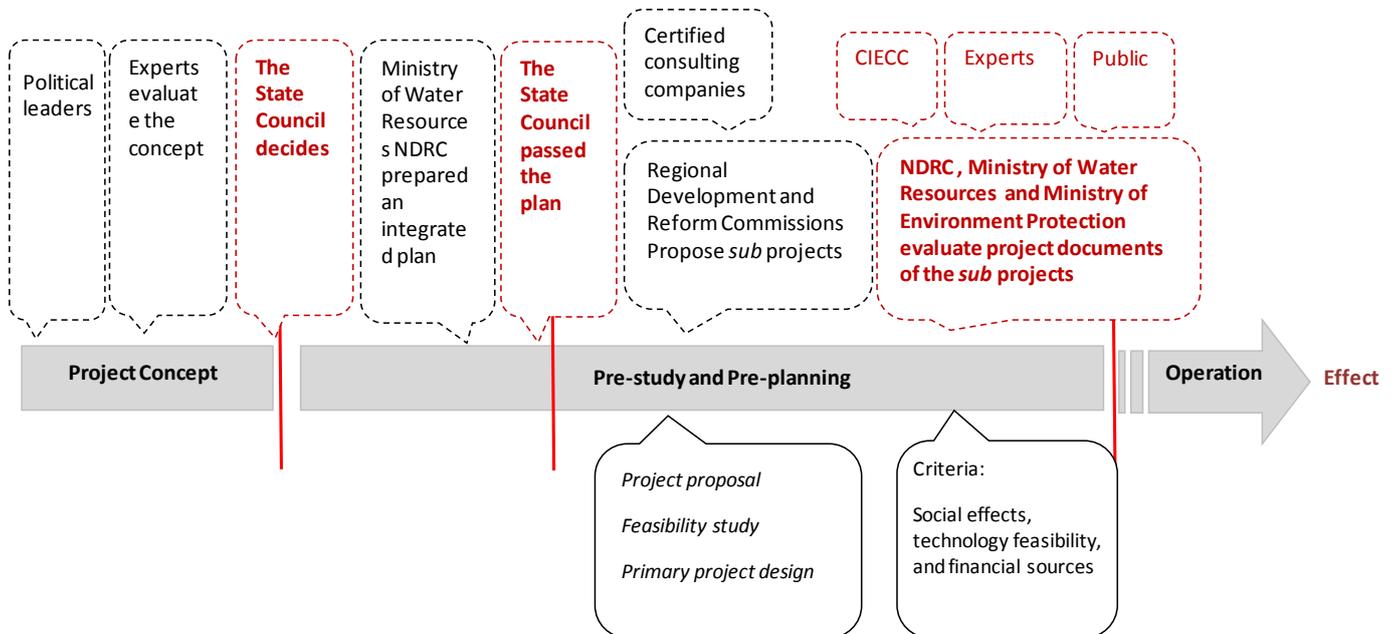


Figure 4: Project appraisal for private investments after year 2003

