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1987

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8-16-1987

### Establishment and Practice of the Chinese Environmental Impact Assessment System

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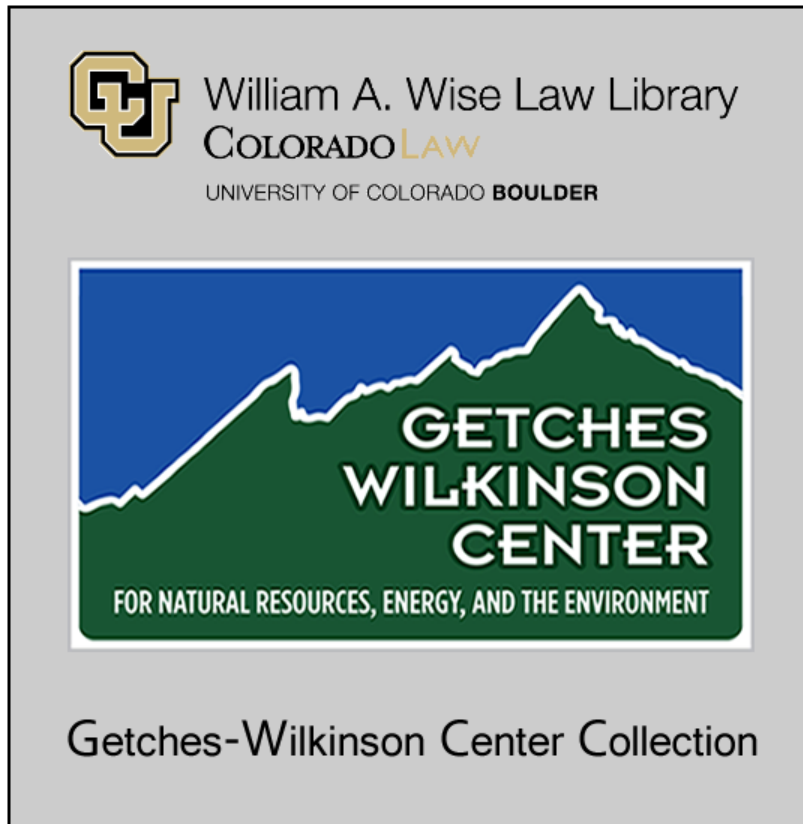
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#### Citation Information

Lin, Dao Lian, "Establishment and Practice of the Chinese Environmental Impact Assessment System" (1987). *Proceedings of the Sino-American Conference on Environmental Law (August 16)*. <https://scholar.law.colorado.edu/proceedings-of-sino-american-conference-on-environmental-law/17>

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Dao Lian Lin, *Establishment and Practice of the Chinese Environmental Impact Assessment System, in* PROCEEDINGS OF THE SINO-AMERICAN CONFERENCE ON ENVIRONMENTAL LAW (Natural Res. Law Ctr., Univ. of Colo. Sch. of Law 1987).

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# **ESTABLISHMENT AND PRACTICE OF THE CHINESE ENVIRONMENTAL IMPACT ASSESSMENT SYSTEM**

**Lin, Dao Lian\***

## **FOREWORD**

The environmental impact assessment system is a very important system that the State adopted to practice environmental management. Another name for the environmental impact assessment is the environmental impact analysis. Before construction of a project, impacts from project location, design, process of construction, and operation which may affect the environment need to be calculated and estimated, and mitigation measures should be raised before the creation of unfavorable impacts, so as to eliminate or minimize impacts. The basis of an environmental impact assessment is to document the analysis and the result into the environmental impact statement. The state will analyze the environmental protection measures, and make corresponding legislation.

The United States is the first country to develop the environmental impact assessment as part of its legal system. Article 102 of the National Environmental Policy Act of 1969 states that any major federal action which will seriously affect the quality of the human environment requires preparation of an environmental impact statement. NEPA also enacted provisions regarding the contents and procedures of an environmental impact statement. Other countries followed the United States by establishing their own systems for environmental impact assessment.

The Environmental Protection Law of the P.R.C. was enacted in 1979 and clearly states the necessary contents of an environmental impact assessment. Article 6 of the law states:

All enterprises and organizations must pay full attention to the prevention of environmental pollution and degradation when choosing a location for construction, design, and operation. For either new construction, exten-

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sion or expansion projects, the environmental impact statement must be prepared. The design work cannot be performed until the environmental impact statement is approved by EPA and other appropriate departments. The facilities for pollution control and prevention of other hazards must be designed, constructed and put into operation simultaneously with the main project. The quantity of discharge of hazardous substances must be below the standards fixed by the state.

The environmental impact assessment system in China is strengthening and becoming complete not only in the area of legislation but also in science and technology. This article will discuss and explain some issues involving the creation and development of the system. The article will also present some problems which face China today.

## **ESTABLISHMENT OF THE ENVIRONMENTAL IMPACT ASSESSMENT SYSTEM**

The Environmental Protection Law (the trial implementation of the law) made special provisions for China's "three at the same time" system. "Three at the same time" means that construction, reconstruction and expansion projects must be designed, constructed and put into operation at the same time as the pollution control facilities and other hazards elimination facilities. This system is a very significant part of the environmental impact assessment system.

China's first national environmental protection conference in 1973 summed up the experiences and lessons learned in past environmental protection work. The conference also acknowledged that the environment is being polluted and destroyed. The conference presented the plan of eliminating three wastes pollution (industrial waste gas, industrial waste water and residue), made a comprehensive plan and layout, 1) to use resources appropriately, 2) turn bane into boon, 3) rely on the masses to protect the environment and 4) make it benefit the people. The overlying principle is actual prevention, then a combination of prevention and elimination. This will show an improvement in the people's understanding of environmental protection.

In November of 1973, the State Council approved of the regulation on Improvement of the Environment which requires the making of a comprehensive plan. The regulation stated:

The development of natural resources including forest cutting, mining, and the construction of large water conservancy projects must be carried out with consideration of the impacts to meteorology, aquatic resources, water and soil conservation as well as other

natural environmental elements ... It is restrictive to look only at present benefits and ignore long-lasting ones.

The fourth section of the document, entitled "Making comprehensive beneficial use and eliminating hazards" for the first time, pronounced:

All construction, extension and reconstruction must have pollution control facilities designed, built and operating at the same time as the main projects. The projects which are presently under construction must design the pollution control facilities if the main projects do not already contain them.

In 1978, the leading group in environmental protection of the State Council on environmental protection proposed the following. The main reporting contents of environmental protection work which involved the "three at the same time" system must be carried out from the very beginning of the main project's construction, and that the design documents of the main projects must contain an environmental protection section which explains the pre-construction environmental condition and forecasts the environmental quality which will occur after construction of the projects. These policies and measures promote the people's understanding of the importance of environmental protection work and propel the work forward, including the preparation work of environmental impact assessment.

In the mid 70s, surveys of environmental conditions had been done at rivers, lakes, reservoirs and water sources. The environmental quality assessment work had also been done, such as the investigation on pollution in the Bohai Sea and Yellow Sea, investigation on pollution of the Beijing Guanting Reservoir, the general investigation of water quality on more than 500 rivers in Hunan Province, environmental quality appraisal of the west suburb of Beijing, and environmental quality assessment of the southeast suburb of Beijing.

At the same time, a few environmental field magazines began to publish research articles on environmental investigation and environmental quality forecasts. They also introduced foreign models of environmental quality assessment and impact assessment. These efforts promoted the development of Chinese environmental impact assessment and paved the way for legislation in the field.

The national environmental management conference of 1979 focused on the issue of forming a guiding ideology to handle the relationship between environmental management and pollution elimination, and also strengthening environmental management and eliminating pollution through such management. The system of "three at the same time" and the environmental impact statements are very effective managing sys-

tems which reflect the policy of making prevention a priority in China.

The enactment and enforcement of the Environmental Protection Law of the P.R.C. of 1979 marked a new period of Chinese environmental protection work, a period of managing the environment by laws. As mentioned above, Article 6 of the Act has clear guidelines regarding environmental impact assessment. This system is closely linked with the system of "three at the same time". The practice of environmental impact assessment provides a precondition and a base for the enforcement of "three at the same time" and substantiates the contents of environmental impact assessment. In China, the environmental impact assessment cannot be carried out without the "three at the same time" system. It is an important feature in environmental protection management, and Chinese environmental legislation.

In 1981, the State Council issued the Management Guideline on Environmental Protection of Construction Projects of the P.R.C. as well as its supplement, Summary of Rules Regarding Environmental Impact Statements on Large and Medium-Size Construction Projects. These documents primarily explain the environmental impact assessment system. The Guideline specifies that, when examining the feasibility studies, plan assignments, location designation reports, or preliminary designs, the examining departments should work with EPA, thereby enabling EPA to be responsible for examining the environmental impact statement of the projects at the different levels, and supervise the environmental protection of the construction projects. The Guideline also states that projects must be constructed so as to limit unfavorable impacts to a minimum; people must also fully utilize resources and power, thereby decreasing pollutant discharges. Projects with environmental impact statements must contain feasibility studies, and plan assignments should be made after environmental impact statements are approved by EPA. The construction units, under such arrangements, cannot make plan assignments before the approval of environmental impact statements by EPA. In this way the feasibility studies, plan assignments, location designation and preliminary design are arranged in successive order.

The supplement to the Guideline concentrates on the basic contents of the environmental impact statement for large and medium-sized construction projects. The statement requires information on 1) the general condition of the construction project; 2) the surrounding environmental conditions; 3) the environmental impact the construction project may cause to the surrounding environment; and 4) technical and economic

demonstrations regarding the feasibility of the project's environmental protection. As to the actual details of the statement, these are worked out between the construction unit and EPA.

Small projects, township and neighborhood working shops, as well as agriculture-industry-commerce combination enterprises may only make environmental impact statements if local construction management authorities and EPA provide a simplified requirement for them.

Before a construction project can be accepted, the project is checked by the authorities concerned and EPA. If the environmental protection facilities do not satisfy the specified requirements, the project may not commence operation. If the construction unit and its leading department violate the rules and cause environmental damage, pollution or other hazards, EPA will impose administrative sanctions on them according to the law.

Since the Guideline states that the environmental impact statement must be based on feasibility studies, most of the construction units go to science research organizations, universities and designing institutes and entrust the work to them. In 1980 at Kunmin, owing to lack of experiences in this respect, the following group organized to jointly work on the project: the Environmental Chemical Institute of Chinese Academy of Sciences, the Yunnan Environmental Science Institute, the Yunnan Meteorology Institute, the Meteorological Science Institute of Centre Meteorology Bureau, the Yunnan University, the Kunmin Industry Institute, the Kunmin Prospecting Company of Metallurgical Ministry, the Yunnan Sanitation and the Antiepidemic Station.

The work began in October of 1980 and ended in September of 1982. During these two years, the information of environmental conditions and background value of the water, air, soil and organisms at the location of the project had been made clear. Pollutant discharges were analyzed in detail; forecasts were made regarding the amount and degree of pollution production may cause; measures were involved to answer the questions people had concerning environmental problems that could be caused by the project. This appraisal work was an environmental and social benefit, and received the Best Science Result award in 1982. The work provided experiences for environmental impact assessment on large projects in the future.

During the sixth five-year plan period, China developed some major projects, such as Gueixi Smeltery, Shijaizhuang Steel Mill reformation project, the second project section of Shanghai Jinshan Chemical Factory, Daqing 300,000 tons Ethylene Factory, and Qilu 300,000 tons Ethylene Factory. Ac-

According to the incomplete statistics, there have been 455 large and medium-sized construction projects in 23 cities including Beijing, Shanghai, Tianjin, Jiangsu, Hunan, Hubei, Gansu, Xinjiang and the northeast area which prepared environmental impact statements in the last five years. Some of the statements played an important role in choosing locations for the projects. The earlier projects improved the environmental protection facility design. This shows the system of environmental impact appraisal has helped make progress in our environmental management.

## **THE GRADUAL COMPLETION OF CHINA'S ENVIRONMENTAL IMPACT ASSESSMENT SYSTEM**

The Environmental Protection Committee of the State Council, the State Planning Committee and the State Economic Committee remade the "Management Guideline of Environmental Protection of Construction Project" and its supplement "Summary of Environmental Impact Statement on Construction Project" in March of 1986 in response to the five years it had been in practice. The new guidelines stated that the environmental impact statement should be finished during the stage with the feasibility studies. The governmental bodies also made stricter regulations on the scope, contents, and the approval procedure of statement, to further complete the system of environmental impact appraisal.

### **CLARIFY APPLICABLE SCOPE**

The new guideline stated:

Whenever a construction project is to be built that will affect the environment, the environmental impact statement must be submitted, as well as the system of "three at the same time". These systems are required for all construction projects, technical reformation projects, industrial zoning developing projects, water conservancy, agriculture, forestry, commerce, sanitation, culture and education, scientific research, travelling, and municipal, which may cause impact on the environment in the territory of China.

On March 4, 1986, the State Council approved the "Temporary Regulations on Environmental Management in the Economic Opening Areas", in which Article 8 states:

The unit which carries out development and construction of an economic opening area must submit an environmental impact statement and an environmental protection section on the preliminary design of the project.



The Regulations on "Strengthening Environmental Management in Township and Neighborhood Enterprises", contain regulations such as "All new construction, reconstruction, expansion or transfers of production in township or neighborhood enterprises must submit an environmental impact statement." In both urban and rural areas all construction must follow the system of environmental impact statement. In this way the environmental management is strengthened in China, although there is still a need to clarify the definition of "cause impact on the environment", as well as how to make requirements on different situations according to the features of the projects.

### **COOPERATION BETWEEN DEPARTMENTS CONCERNED**

The Guideline requests that governmental departments involved in planning, land management, construction, technical reformation, banks, material, industrial and commercial administration all put environmental protection management of construction projects into their working plan. For instance, a project which fails to have its environmental impact statement approved cannot get its design assignments approved. Also, the land management authority will not issue a Land Use License, banks will not give out a loan, there will be no construction license, no materials and no equipment. Those projects without certification of quality from EPA cannot get an operation license from the industrial and commercial administrative departments. The cooperation and the checks at all levels ensure the actual enforcement of the environmental impact appraisal system.

### **DEFINE COMPETENCE AND PROCEDURES FOR APPROVAL**

The Guideline regulates both large and medium-sized construction projects. Technical renovation projects, or projects which meet a certain investment standard, must be examined by the responsible authority of the province and the level above and be submitted to the provincial EPA for approval, and at the same time register in the National EPA. For projects which cross provincial boundaries or contain special features such as nuclear projects or highly confidential projects, the environmental impact statement must be examined by the National EPA. The examination and approval of very large projects is within the scope of authority of the State Council. The environmental impact statements of small projects are examined and approved by the county EPA or the level above as well as by responsible administrative departments.

## **APPRAISEMENT UNITS QUALIFICATION EXAMINATION**

Units which submit an environmental impact assessment must obtain a credential certificate for construction projects. Authority for units to submit Environmental Impact Assessments are made up of two certificates: "Certificate of Comprehensive Assessment" and "Certificate of Special Assessment". The first kind of certificate was issued to 287 units. The second kind was issued to 16 units, including science research units, universities and designing units. These units all had many years experience in environmental sciences and environmental impact assessment research work. Before 1986, they finished more than 30 environmental impact assessment projects for petroleum, chemical, power, metallurgy, construction material, and textile industries and provided the basis for a decision on national economic construction.

In order to ensure the enforcement of the Environmental Protection Law and Management Guidelines regarding Environmental Protection of Construction Projects, the State Planning Committee and Environmental Protection Committee of the State Council jointly made the "Regulations on Environmental Protection Design of Construction Project" in March, 1987. The environmental protection design must follow environmental impact statements, as well as the system of "three at the same time". The Feasibility Study of the project must have a special section of environmental protection detailing: 1) the environmental condition of the construction area; 2) the main pollution sources and the pollutants; 3) the possible changes to the ecosystem caused by development; 4) a list of the environmental protection standards that must be followed; 5) the preliminary plan for the elimination of pollution and also a survey of the ecosystem changes; 6) the budget for the environmental protection; 7) a summary on the environmental impact assessment or analysis on environmental impact; and 8) existing problems and proposals.

China has set up a workable system, as can be seen from the above mentioned policies, laws and regulations. Yet, some new problems have been discovered. They need to be solved so as to perfect the environmental impact assessment system.

## **EXISTING PROBLEMS AND PROPOSALS**

Research involving environmental science and technology began comparably late to the other sciences, so there is not a large amount of fundamental material. Also, due to historical reasons, the quantity of legal research is weak. The environmental impact assessment system is a new, comprehensive topic with a wide range of varieties, complex contents, and a

high level of knowledge needed for science and technology. China does not have a domestic example to learn from, nor are foreign models suitable to apply. China could only learn by doing. The following problems have become evident in recent years, and need to be studied.

### **THE INVOLVEMENT OF THE MASSES IN THE ASSESSMENT**

Many nations require its citizens to participate in the environmental impact assessment. Citizen involvement is an important environmental policy. The reason for this is obvious, as people are most concerned about the effects of a development in their area. Although environmental impact assessment needs specialized knowledge that the public often lacks, many countries still have regulations providing for public participation. In China, the people are considered the masters of the country, and the guiding ideology of China's environmental protection work becomes "relying on the masses, getting the people involved, protecting the environment, and making benefits for the people". The present situation in China of relying only on experts and letting only the responsible department examine and approve of the environmental assessment should be changed. China should analyze and consider suitable ways in which the masses could take part in the assessment work. One example could be construction units, with the responsible departments reporting the findings of the environmental impact assessment to the local people's conference and its divisions, or explain the situation to a local neighborhood committee and ask for comments. An exchange of opinions could only benefit a construction project, as the local people may raise some questions which the experts had failed to consider, while the experts could answer questions which have worried the masses thereby avoiding and reducing future disputes. Therefore, it is necessary for the masses to participate in the assessment work, and this proposition would have great importance in perfecting the environmental impact assessment.

### **THE APPLICABLE SCOPE OF THE ENVIRONMENTAL IMPACT ASSESSMENT SYSTEM**

According to the Guideline and other regulations, all new constructions, reformation projects and expansion projects in almost all fields which might impact the environment must do an environmental impact assessment. The new Guideline greatly extended the scope of the old Guideline. Since the environmental impact assessment is a very complex work, it needs time and investment. At present, Chinese modernization and

construction are developing at a high speed, while the capacity of environmental science and management is limited. If China simply required all construction projects to develop an environmental impact assessment without any conditions attached, the quality of the assessment could not be ensured. If the project becomes badly needed, the construction unit might not pay attention to environmental concerns, and just buy a "pass" to go through the legal procedure. If this becomes the practice, the environmental impact assessment will become a mere formality.

Article 102 of the United State's National Environmental Policy Act of 1969 provides that an environmental impact statement must be developed for a federal action which will significantly affect the quality of the human environment. The legislators of NEPA are very careful in limiting the definition of federal actions to include certain feature elements. For example, some projects need to submit an environmental impact statement because they are major actions, while other projects do not necessarily do so because they are not major actions and the public, local governments, state and federal levels all think the impact caused by such projects are bearable. This is a method worth learning.

China's 1981 Guideline provided the categories of projects required to make an environmental impact statement: 1) all large or medium-sized industrial construction projects which will impact the natural environment or will discharge a pollutant that will degrade the surrounding environmental quality; 2) all large and medium-sized water conservancy projects, mines, ports and railways which may affect the natural environment or the balance of the ecosystem; 3) developing projects which will cultivate wild areas or reclaim land from a lake or the sea, or cut forest land on a large scale; 4) large or medium-sized construction projects which will seriously affect the existence and development of wildlife or wild plants; and 5) construction projects which will affect nature conservation areas or special geological areas and landforms with special scientific value. All these projects are having a long lasting impact on the environment. The legal requirements for the statements should be varied from one to another according to their features. In this way China could control the situation and push forward the development of environmental impact appraisal systems.

Regarding township and neighborhood ownership of enterprises, the experiences of Shuende County in the Guangdong Province and Changzhou City in the Jiangsu Province provide examples. Their experiences show that three points should be grasped in environmental impact statements: 1) the structure

of the products should be reasonable; 2) the location of projects should be appropriately chosen; and 3) polluting enterprises must practice the system of "three at the same time". If China keeps control on these three points, it will not be too difficult for China to eliminate the pollution of these enterprises.

## **QUALITY ASSURANCES OF THE ENVIRONMENTAL IMPACT ASSESSMENT**

Assessment work is most entrusted from construction units to qualified assessment organizations by means of a contract. Construction units will submit a statement to the responsible department for pre-examination, which is then approved by EPA. Such procedures have in some way contradicting sides, such as that assessment units are required to fulfill the work according to the State regulations and the contract, but the state either has no specific regulations or the regulations are very flexible. Once in a while, if a department or EPA gives the approval to their subsidiary as a favor because of funds, then the approval in fact, is a self-approval. This eliminates or reduces the meaning of control, and is not helpful to the quality of assessment. In order to guarantee scientific certainty and fairness, the subsidiaries of the local EPA should not undertake assessment work in their own areas.

In recent years, most of the assessment work has been done by scientific research institutes and universities. Although these organizations have certain experiences, they may not be familiar with technological processes of all kinds of industry. If the project design unit could participate in the assessment work, the two parties could learn from each other and improve the quality of the environmental impact statement.

The environmental impact assessment is a very complex work involving many of the sciences: meteorology, hydrology, geology, ecology of animals and plants, technology, sanitation and antiepidemic, economy, law, humanities, along with other natural science and social science elements. A large amount of back-ground data needs to be collected over a long period of time. It is very difficult for assessment work to contain data in such a short time. The reliability of assessment results will therefore be affected. This work needs full support, therefore a solution would be legislation requesting departments to provide data unconditionally, thereby putting an end to the situation which exists of some departments refusing to provide data or asking a high price for the data.

Now we have already practiced qualification exam systems on the organizations who undertake the work of assessment. The national EPA should form a group, combining with

qualification examination, to check the quality of the statements submitted by assessment units, to discriminate the level of the statements and to establish files on the examination, so as to manage qualification examination and certification issues. The units which make bad quality assessment or have defects in their work will be warned, ordered to do the work again, until the certificates are cancelled.

The system of environmental impact assessment has been practiced in China for a few years, playing an important role in environmental management. In order to further perfect the system, the state should make correspondent laws and regulations timely, such as "The Technical Standards of Environmental Impact Assessment", "Detailed Regulations on Environmental Impact Assessment", etc. China could then meet the needs of its socialist modernization construction and help to realize the goal of environmental protection.