

# **China's Challenges in Environmental Regulation**

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## **BACKGROUND**

The scope and scale of China's miraculous economic growth are matched only by the nation's massive resource destruction and environmental degradation in the last two decades. The sharp contrast and alarming rate of environmental deterioration have prompted the central government to rethink the development strategy of the country and to pursue a new paradigm for achieving a harmonious society. This is by no means an easy task. To highlight its determination for change, the Central Government made an ambitious goal to cut the energy intensity as measured by energy use per unit of GDP and to cut emission of major pollutants, particularly COD and SO<sub>2</sub> by 20% and 10%, respectively, in the Fifteenth Five Year Planning. The bold endeavor is dwarfed by the environmental performance in 2006, the first of the five planned years; both indicators rose sharply, not decreased, to everyone's disappointment. One could not help to wonder why environmental objectives are so hard to achieve in China? To gain a more in-depth understanding to this seemingly simple question, a team of researchers of multidiscipline is formed with sponsorship of the Center of Environmental Governance and Industrial Development at Tsinghua University School of Public Policy and Management. The Center is established and supported with a generous grant from Toyota Corporation for research on environmental governance, industrial development and institutional renovations.

The goal of the project is to develop a theoretical framework that can be applied to understanding the institutional constraints and to assess the effectiveness of the system of environmental governance in China. Specifically, the project is aimed at 1. describing clearly the environmental governance system in China; 2. formulating a theoretical framework to explain the institutional constraints that lead to environmental degradation; and 3. evaluating the effectiveness of China's environmental governance. The project is not intended to propose policy prescriptions for the institutional problems analyzed. Nevertheless, a few policy recommendations were derived from the conclusions of the analysis.

## **China's Environmental Challenges**

China is facing unprecedented challenges in its efforts to protect the environment and natural resource base. The rapid deterioration of the nation's environmental quality and depletion of its natural resources are threatening the lives and health of the largest population in the world and the very potential for sustained growth of the

economy. One out of every five cities in the country suffers from serious air pollution; two thirds of all cities experience shortage of drinking water; one third of the land area is affected by acid rain; one third of land suffers from soil erosion and desertification; more than 90% of natural grasslands are degraded and overall biodiversity is threatened. Based on newly developed Environmental Performance Index ranking of 133 nations on 16 indicators of environmental quality and policy performance, China ranked 94<sup>th</sup>, below all the developed and most of the developing nations of the world. Moreover, not only is China the second largest green house gas emitter in the world after the United States, projections are that due to a number of geographical, social, and climatic conditions, China will be hit by climate change much harder than many other countries. These threats call for urgent action and effective environmental governance.

The Chinese government has recently elevated the importance of environment protection in the nation's development strategy. In his address to the Sixth National Conference on Environmental Protection on April 17, 2006, Premier Wen Jiabao stated that "we must be fully aware of the severity and complexity of our country's environmental situation and the importance and urgency of increasing environmental protection. Protecting the environment is to protect the homes we live in and the foundations for the development of the Chinese nation. We should not use up resources left by our forefathers without leaving any to our offspring. China should be on high alert to fight against worsening environmental pollution and ecological deterioration in some regions, and environmental protection should be given a higher priority in the drive for national modernization." [24] Environmental protection is critical for implementation of the scientific development concept, for achieving a Xiaokang society, as a test of how well the government is serving the people and building its capabilities, and for ensuring the construction of a socialist harmonious society.

The 11th Five-Year Plan (2006-10) set clear goals related to environmental protection. These include promotion of energy efficiency, pollution control and resource conservation so as to be able to cut energy consumption per unit of GDP by 20% and major pollutants by 10% relative to 2005 levels by the end of the 11th Five-Year Plan and increase forest coverage to 20% of the country from its 2005 level of 18.2%. Profoundly, these indices will be used to evaluate the performance of governments at various levels. However, none of these indicators seemed to be on the right track to be achieved viewing from the result in the year of 2006 and first half of 2007.

## **EXISTING THEORETICAL INTERPRETATIONS**

### **1. The Development Stage Theory**

Some scholars attribute the environmental problems to the stage of economic development. They consider that a close relationship between environmental quality

(or the opposite, environmental pollution) and the level of economic development. This theory is generally based on observations which can be described in a simplified way in three economic development stages, low, middle and high. When the state of economic development is low as in the pre-industrial period, environmental quality is high because pollution and other environmental damage are minimal due to low level of anthropogenic activities. As the economy develops, environmental damage increases as a result of increased human activities, low awareness of the consequence of environmental deterioration, and lack of regulation and intervention for protecting the environment. Thus at the middle level of economic development as seen in China now, environmental damage is high and environmental quality is low. However, as the economy further develop into even higher level, the environmental quality will increase due to better environmental management and to the fact that the business and society can afford spending on prevention and damage control of environmental problems. What have been happening in the developed nations provides good examples that the higher environmental quality is consistent with greater economic development.

A widely cited empirical evidence for the development stage theory is the so-called environmental Kuznets Curve [27, 28]. The curve's has two dimensions; the horizontal axis is per capita GDP (or per capita income) and the vertical axis is the environmental quality or its opposite, environmental damage. The Kuznets parabola thus describes the environmental quality as a function of per capita GDP (or per capita income), an indicator of the economic development. The believers of the Environmental Kuznets Curve assert that the environmental quality goes down before going up as the level of economic development moves from low to high.

Based on the development stage theory, one may simply consider the current environmental problems are merely a reflection of the stage of development China is at. This deterministic view of the environmental problems, if true, manifests the significance of the link between economic development and environmental damage. While many believe the overall trend of the parabola, empirical studies have shown less agreement on the exact parameters of the curve. The environmental Kuznets Curve is at most a description of the correlation between environmental and development, not an explanation of the causal relationship between the two factors.

## **2. The Development Approach Theory**

Development mode refers to the type and path that economic development of a nation or society pursues. The approach to development is a reflection of the development philosophy and strategy, and is clearly reflected in the way that the economic production is carried out. Based on the production factors, one can identify different economic production types as labor intensive, capital intensive, technology intensive, or resource (land, mineral, water etc.) intensive. Each type of production has a unique impact on the environment.

The development mode theory attributes the environmental problems to the mode of economic development. In recent decades, China has pursued economic

development through rapid industrialization. China's industrialization is characterized by intensive resource use and labor input, and low resource use efficiency. Environmental degradation occurs when resource is overly extracted and utilized, and when much waste is produced from the production and consumption. A key feature that contributes to the environmental problems in China is the export-oriented production. As much as one third of the production is for the purpose of export. The industrial products are not sold and used within the country but in the international markets. In order to produce these products, raw material, intermediate products and energy have to be imported from overseas. China becomes a big workshop that produces industrial products for the world. Industrial production, especially in the industry with high material and energy input, tends to be associated with environmental pollution. The model of industrialization and economic development that China has chosen or developed into has major environmental impacts. Therefore, many scholars and government officials including the premier have been calling for a fundamental shift towards an environmental sound model with greater resource use efficiency.

### **3. Political System Theory**

Associating the environmental problems with the certain political systems is nothing new. In 1970s when the first World Conference on Human Environment took place in Stockholm, Sweden, the world was still divided between East and West, or the camps of socialism and capitalism. Environmental pollution was earnestly considered by the socialist camp as a unique feature of capitalism, something that would never happen under the socialist system. Today, such a claim would not be considered serious. Yet, some still think political system is a big explanatory variable. For example, some authors who study China's environmental challenges tend to think that the state of democracy, or lack of it, is the cause of the problems. Since early 1990s when the Cold War was over, the nations are rarely labeled with socialism and capitalism, but they are still labeled with democratic or authoritarian nations, despite such a dichotomy makes no more sense than its predecessor. After all, democracy must be defined clearly in order to be understood correctly and accurately. Like the assertion three decades ago that attributes environmental pollution to capitalism, the political system theory today does not provide much empirical evidence and intellectual insights on the causes of the environmental problems. However, this theory does point out the link, however weak and indirect, between environmental problems and political systems. It is for the later research to uncover the political factors played in environmental damages and management.

### **5. Environmental Enforcement and Compliance Theory**

Three factors are often cited, in a sequence, in interpreting the causes of environmental problems in China. They are **incomplete legal system** (*fazhi*

*bujianquan*), **non-compliance** (youfa buyi), and **lax enforcement** (*zhifa buyan*). The explanation goes on, each factor is further illustrated in terms how it functions. For example, in explaining the grant scale of non-compliance, a phenomenon is often noted that compliance costs more than paying the penalty for violation of the law and regulations (*shoufa chengben gao, weifa chengben di*). Thus, a rational polluter must prefer paying the penalty to compliance with the law.

Lax enforcement makes the violators of laws and regulations escapable from any punishment, which further reinforces the law-breaking behaviors. There must be deeper causes underlying the weak enforcement and compliance. Tradition of and respect for rule of law, a well-designed laws, accountability, and capacity for enforcement are among the key factors influencing the enforcement and compliance.

## **5. Institutional Capacity Theory**

Institutions often refer to agencies in the government, but it is certainly much broader than that. When referring to organizations like government agencies, institutions also include other types such as corporations, non-governmental organizations (NGO's), and many informal or unofficial organizations (not registered with the government). As one of the most complex and sometimes confusing term in economics, sociology and political science, institution can also be used to refer rules, customs that organizations follow in making major decisions.

However, the institutional capacity theory simply points to the fact that inadequate capacity in the government is an important factor for lack of effective enforcement [7]. Inadequate capacity may mean (1) lack of government agency dedicated to environmental protection as in China prior to 1983; (2) the designated agency does not have the authority and power needed for the job; (3) constraints from interagency interaction and trans-jurisdictional frictions; (4) understaffing, and (5) insufficient resources and skills in the designated agency.

Funding is the most limited resource in environmental capacity building, especially in developing nations where competing priorities all require funding to be allocated for implementation. Since enforcement of environmental regulations tends to be costly, economic and market instruments are recommended to alleviate funding shortage and to enhance compliance [33, 34]. In a broader sense, the institutional capacity should also include other types of organizations. Thus, one may identify factors such as public participation, voluntary cooperation of corporations with the government.

## **CONCEPTUAL FRAMEWORK**

Key concepts from the Comparative Institutional Analysis by Professor Aoki are used to form the foundation of the analysis in this study. First, the concept of institution is defined as the rule of the game as in North (1990, 1994). Aoki (2001) emphasizes on the self-implementation or self-execution of the rules. In his view, an institution has to be implementable, otherwise it is not considered to be one. North

distinguished formal rules and informal rules which can be seen as rules written on book and rules implemented in practice, respectively. From the perspective of implementation, we call the former de jure rules and latter de facto rules. In fact, part of the de jure rules are actually implemented in reality, these rules, together with the de facto rules are called implemented rules. Our objective is then to describe clearly what are the de jure rules and de facto rules, and to explain why some of the de jure rules are never implemented and what it takes to make de jure rules implementable?

Governance

## **1. Governance as decision process of organization**

In its generic sense, governance is *considered as process of decision-making of a group of people or an organization to direct their collective effort for achieving certain goal*. The group of people may choose from different ways to make their decisions: for examples, to meet, discuss, and vote, to draw lots, or in some of the traditional society to use sorcery. The group or an organization follows certain rules in the process of decision-making.

There are a few elements in such an understanding of governance. Governance exists in a group of people or an organization, not in individuals; it is about decision-making, it is oriented to the goal of the organization. Governance is about public action and organizational decision-making. However, governance is not the decision-making process *per se*, in other words, it is not a series of decision-making actions. Rather *it provides rules and procedures as how the decisions are made*.

## **2. Governance as art of steering societies and organizations**

If the group or organization is too large to efficiently make all necessary decisions, it creates an entity to facilitate the process. Group members delegate a large portion of the decision-making responsibility to this entity. In voluntary sector organizations, this entity is the board of directors. One simple definition of governance is "the art of steering societies and organizations." Governance is about the more strategic aspects of steering, making the larger decisions about both direction and roles. Some observers criticize this definition as being too simple. Steering suggests that governance is a straightforward process, akin to a steersman in a boat. These critics assert that governance is neither simple nor neat — by nature it may be messy, tentative, unpredictable and fluid. Governance is complicated by the fact that it involves multiple actors, not a single helmsman. These multiple actors are the organization's stakeholders. They articulate their interests, influence how decisions are made, who the decision-makers are and what decisions are taken. Decision-makers must absorb this input into the decision-making process. Decision-makers are then accountable to those same stakeholders for the organization's output and the process of producing it [36].

The rules and procedures applied to create the body of decision-makers and the interaction between the decision-making body and the stakeholders are considered to be important components of governance. Roles, functions, responsibilities and interactions of agencies, levels of authority, and sectors of society are all part of the concept. This understanding of governance implies democratic decision-making and accountability. The rules in a company are fixed in corporate by-laws. The rules of a society are made in legislations as well as in traditions. These rules are enforceable, enforced and complied.

### **3. Governance as traditions and institutions**

A typical and authoritative definition of governance is given by the group of authors who work on the governance issue publish the series of biennial report on governance of nations for the World Bank. This group of authors, consisting of Kaufman, Kraay, Mastruzzi, and Zoido Lobaton, defines governance as “the traditions and institutions by which authority in a country is exercised. This includes (1) the process by which governments are selected, monitored and replaced, (2) the capacity of the government to effectively formulate and implement sound policies, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them” [37]. See Box 1 for various definitions of governance including this one. This definition emphasized on the rules, informal (traditions) and formal (institutions). The three elements of governance in this definition are simply organization and operation of government, government capacity in policy-making and implementation, and rule of law of the society [38].

One problem in the World Bank definition of governance is that it goes further to include everything from institutions and policy outcomes. Such an extension, while being inclusive, often confuses the discussion. We keep the definition on the level of rules, not including policy outcomes.

### **4. The Nature of Governance**

Is there something in common among all the definitions above? A simplest one is to define governance as “the rule of the rulers”, as the process by which authority is conferred on rulers, by which they make the rules, and by which those rules are enforced and modified.

We understand the governance as *a system of rules under which an organization or a society operates*. This is the “what” component of governance. In addition, the concept also includes a “who” and a “how” component. The “who” component is the actors and players, the groups or organizations in the society, the ruler and the ruled etc. And finally the “how” component deals with implementation of the rules, or the processes, procedures, mechanisms and their effectiveness.

The first (“what”) part of the governance defined above is what North called institutions. North defined institutions as rules of games. He distinguished formal

rules (such as constitutions, property rights, and contracts) and informal rules (customs and norms). Apparently, the static nature of institution cannot cover the richness of governance as a dynamic process. At its core, governance includes the process of implementation of the rules, which is the “how” component. In addition, another key component is the players who make and implement the rules and who are affected by implementation of the rules.

### **Making Central-Local Relations Work: Comparing America and China Environmental Governance Systems**

The challenge of making central requirements work at local levels is a common problem for environmental governance. As China develops its environmental governance system, it studies models and concepts from other countries. However, while there is now a global sharing of common concepts, their practical meaning depends on local circumstance. If transplants are to take root, or if countries are to understand one another’s environmental governance systems to address cross-border environmental issues, it is essential to understand the “local” meaning of common terms.

This paper compares common features of the China and U.S. environmental governance systems that shape both each country’s choice of environmental governance concepts and tools, and the way and effectiveness which they are applied. These common features include: (1) key common values which shape the environmental governance choices in both countries, but which may have different practical meanings from one country to another; (2) the relation between the American common law-based environmental governance system, and the China civil law system which involves plan(s) as well as law; (3) America’s Federal central-local system, and China’s unitary central local system which involve both differences and similarities.

The paper concludes by suggesting areas in which further comparative understanding may be of value, including: (1) focusing on better understanding of the role of plan and law in China’s governance system; (2) comparing American Federal-state agreement system for implementation of environmental law with China central-local system of target responsibility agreements for implementation of the plan; (3) improving understanding of the nongovernmental, as well as civil service, resources needed to assure compliance with environmental laws and plans; (4) finding and adopting legal and institutional means to resolve current difficulties in central-local and cross-border environmental governance.

First, America and China now both profess adherence to “rule of law” based governance systems. However, in considering transplant of tools of environmental governance between the U.S. and China, or the implementation of China/U.S. agreements to address cross-border pollution, focus should be on the workings of the plan as well as the law.

The American environmental governance system is “law centric.” The law defines goals, defines the requirements that will be imposed on potential polluters, provides for penalties, and directs the focus of official resources. In China, these functions are performed through plans in combination with the law. To make transplants work and to understand implementation of environmental governance in China, basic questions about the relation between the plan(s) and law(s) remain to be explored.

Second, while the U.S. has a Federal and China a unitary system, in both cases primary environmental requirements—whether stated as law or plan-- come from the central government and are transmitted to localities by inter (or intra) governmental agreements. In the U.S. these are primarily agreements between Washington and the states. In China these include agreements for enforcement of five year plan targets, but also for enforcement of local environmental targets. Thus, while there are fundamental differences between systems, there are common opportunities for learning about the design intergovernmental agreements that work.

Third, China’s unitary/*tiao kuai* and America’s Federal environmental governance systems contain organizational features that invite comparison, including: (1) the use of regional offices for central/local coordination and enforcement; (2) the institutional tools used for cross-border (inter provincial or interstate) pollution; (3) the location of authority for resolving GDP and environment conflicts.

Finally, in American and China environmental governance systems, as elsewhere, the size of the environmental governance workforce is small in comparison to the number and diversity of sources of pollution. Comparisons between systems can be useful in improving the capacity and operations of each system.

First, in both cases the central civil service workforce is smaller than the local workforce; but in China it is both substantially smaller than the US central workforce.

Second, in both cases the civil service workforce is only a portion of the total human resources available for compliance and enforcement. In China, the civil service environmental workforce is supplemented by government paid workers who work in *shi ye dan wei*. In the U.S. the workforce is supplemented by government contractors, whose work includes planning, policymaking, and assistance in enforcement and compliance. There appear to be common questions about the rules that should apply when government paid non-government workers perform the basic work of government.

Finally, the American system relies extensively on private citizens to assist in environmental law enforcement (and rule and policy development). This system is consistent with the American tradition in which stability is found in the activities of diverse nongovernmental organizations. As China develops its environmental governance system to meet great environmental governance needs, it may consider how to find these resources within a system that has Chinese characteristics.