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# Structures and Logic of EP Implementation and Administration in China

Dieter GRUNOW

**Abstract:** This paper describes empirical observations gathered during a research project on the implementation of environmental protection (EP) policies in China. The project focused on local EP in both urban and rural areas. Policy field analysis was used as a conceptual framework for structuring the observations. The paper develops in three main steps discussing the following topics: 1) Collective problems within the policy field of EP show that EP issues in general are unlike those of other policy fields. Official EP policies in China today resemble those of other countries – but they are separating issues and responsibilities, making local implementation very demanding. 2) China lags behind in its willingness and ability to implement these policies – leading to implementation gaps. To explore the causes and consequences, specific sites in China are described in an extended look at local implementation structures. It was found that although policies in China are basically the same everywhere, the structures for implementing them and the quality of their implementation vary widely with regard to resources, organization, coordination, staff qualifications, personnel placement, and other aspects. 3) Not all of the challenges hampering local implementation of environmental policies were China-specific; however, some of those which are can be described as the macro-context: an ineffective rule of law, insufficient involvement of civil society, and complicated macro-structures of public administration prevent a generally high level of successful EP implementation in China.

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**Keywords:** China, EP implementation, local EP administration, implementation gap, staff performance

**Prof. (em.) Dr. Dieter Grunow** taught Political Science and Public Administration at the Institute of Political Science at the University of Duisburg-Essen, Germany. He currently serves as the executive director of the Rhine-Ruhr Institute for Social Science Research and Political Consultancy (RISP).

E-mail: <dieter.grunow@uni-duisburg-essen.de>

## Introduction

This paper describes empirical observations derived from a research project on local implementation of environmental protection (EP) policies in China in light of long-lasting deterioration of the environment in China (SEPA 2006; OECD 2007; World Bank and SEPA 2007) on the one hand and the growing number of environmental protection policies and pieces of legislation by the Chinese central government on the other. This discrepancy between attention and neglect is described as the “implementation gap” – a phenomenon well known since the publication of Pressman and Wildavsky (1973). A “gap” in this context is defined as the difference between the norm (standard), as defined by a public policy, and reality – for example, concerning the “allowed” level of air pollution (CO<sub>2</sub>) and actual levels (examples in Chan et al. 1995).

Although implementation gaps exist in every country and are often taken for granted in the context of political administrative systems (PASs) and policy structures, it is difficult to explain their differences in content and scope regarding EP in China and the consequences of this phenomenon. To improve the search for explanations, the research project compared EP implementation under the direction of local Environmental Protection Bureaus (EPBs) at three urban and three rural sites in China.

Since the implementation processes described here are required by Chinese national law, it can be assumed that the six chosen sites were operating under similar or even equal normative conditions. In the terminology of comparative research, the approach of this project can be described as a “small-N and most similar cases design”.

However, the lack of adequate information in China generally makes it impossible for foreign scholars there to meet strict methodological requirements for practical research in this area. For example, it is not possible to gather sufficient information for an appropriate selection of research sites. And even when such sites are properly identified, proper application of research methods is complicated, even if there is good cooperation with Chinese research institutes or universities. The research presented here was hindered by these handicaps and must therefore be characterized as a qualitative analysis of six cases of local environmental governance.

In spite of the dominance of national EP policies in China and the existence of vertical “chains” of command, considerable leeway for discretion is permitted on the local level due to recent decentralization pro-

cesses in China's PAS. It is not necessary to enter into a discussion about whether there is too much political decentralization in China (Economy 2004; van Rooij 2006). It is generally acknowledged that China has a fragmented administrative system, and the research looks at the consequences of this situation. Therefore it can be expected that – in spite of the generally uniform policy context – local actors in China will perform differently with regard to EP issues in different places. This paper therefore begins with a description of local implementation arrangements and then goes on to develop hypotheses about causes and consequences with regard to China's environmental problems.

Two other elements of comparison were implicit in the study but will not be explicitly discussed in this report: 1) A look from the “outside” (Germany; Europe: Pamme 2003) – even if very spurious in this contribution – allows for reflection as to whether the causes and effects might be specific to the Chinese context. 2) An analysis of the public area under review (environmental protection) allows for reflection as to whether the causes and effects might be specific to the problem characteristics of this policy field. This widening of the purview for observations and interpretations can help to avoid a typical fallacy of the research strategy chosen here, namely that of blindly interpreting the observations of the project as “features specific to China” vis-à-vis the implementation gap.

As a recent study of the development of implementation research has shown, policy outcomes are influenced by many factors (Hill and Hupe 2009). A comparison of different implementation settings can enhance an understanding of the factors influencing the “gap”. But even this depends on whether the objects of observation are chosen correctly – and whether it is possible to investigate them empirically.

What are the elements of comparison in the six case studies (and in this paper)? As a general conceptual framework, the analysis of policy fields is used. This framework is much broader than that of single-policy analysis (Sabatier and Mazmanian 1983), which is typically the concern of evaluation research. Policy fields are subsystems of the PAS of a country. They are constituted by intensified communication (networks). Their analysis allows us to identify the complex interdependencies between various problems and policies. According to the scientific literature (Grunow 2003 as a summary), policy fields should be analysed by specifying

- the (collective) problems to be “treated” or solved;

- the political-administrative programmes/ projects that define public goals (public goods) and implementation procedures;
- the actors who determine programme design and political decision-making;
- the actors who determine implementation processes and their evaluation; and
- the addressees specified by programmes and decisions – including the effects (impact, outcome) that are to be sought and/ or realized.

The historical development of policy fields has been characterized by increasing complexity and functional differentiation in modern societies. In OECD countries – with their high levels of differentiation – the domains of policy fields are delineated by such institutional and organizational indicators as single-issue parties, parliamentary committees, law books (= collections of public policies), ministries, segments of public budgets, segments of public administration on different levels, “light-house” institutions like EP councils or special EP think tanks, staff areas with special sets of skills, client groups, interest groups, NGOs, etc.

This differentiation also implies specialization in terms of knowledge acquisition and power distribution. Input during the development of policy fields can come from all of the above-mentioned areas. Minsch et al. (1998) have developed a comprehensive checklist for identifying sustainable development in public institutions. However, policy fields are also embedded in the overall polity and political architecture of any country under observation. In addition to EP specifics in China, the following analysis must therefore also refer to the general principles of Chinese administrative architecture and its reform – which is called “*Verwaltungspolitik*” in Germany (Seibel 2001: 75ff). These aspects might explain some divergences (in comparison with other countries) and convergences (within the Chinese EP context). The analysis of policy fields is seen here as a fruitful way to reconstruct and explain implementation gaps. It avoids referring to an endless list of policies in the country under study. Nevertheless, it is possible to use “established” concepts to characterize various types of policies in order to explain the performance and (non-)development of the respective policy field.

The spectrum of policies in the EP context is very broad, involving such areas as air, soil, water management, waste disposal, the preservation of flora and fauna, etc. The way to influence the relevant actors in government, economy and civil society is still dominated by the regulative mode – prescriptions, control, sanctions. However, other modes of

intervention have also emerged in policy design during recent years: financial (dis-)incentives, information and persuasion, obligatory infrastructures, market competition, and market price mechanisms. Often these modes are also combined – indicating a lack of knowledge about their individual effectiveness.

Public policies (laws, projects) are often analysed by referring to the dynamics of a policy cycle (Lasswell 1956; Sabatier 1988). A policy cycle is an ideal construct used to describe the process of policy-making and policy implementation in terms of problem definition processes, agenda-setting, decision-making, implementation, and conducting final evaluations. Policy cycles are embedded in 1) the respective policy field and 2) the basic architecture of polity/ politics in the country under study. This embedding also explains some features of the oft-observed stability or path dependency of their development (Pierson 2000).

Local implementation procedures result from complex constellations of knowledge, power and interests. While it is possible, if difficult, to rearrange such situations, the consequences may be both unexpected and unwanted (sometimes called “lateral damage”). Whether, when and how changes or reforms will happen depends not only on specific policy problems (like those related to EP) and their solution but also on the overall status and developmental dynamics of the respective PAS.

One of the latest explanatory concepts regarding changes in policy fields is multiple stream analysis (Kingdon 1995), which adds the notion of contingency by speaking of a “window of opportunity”. Such a window may “open” quite unexpectedly – but only if the “problem stream”, the “policy stream” and the “politics stream” co-evolve or fit together within a specific time period.

Although the potential complexity of the conceptual framework is evident, only a few topics need to be selected for discussion here. With varying intensity, these topics will correspond in the following sections of the paper to the basic categories of policy field analysis:

- Topic 1: Problems within the policy field of “EP”, along with policy formulation as the basis for local implementation to resolve them.
- Topic 2: This important section of the paper describes local implementation structures at six sites in China and identifies factors that influence the quality of local EP. Urban sites (2007): Shihezi, Xiamen, Yingkou; rural sites (2009): Deqing, Shouguang, Nanfeng.
- Topic 3: The “macro-context”.

A summary and conclusion then follow.

The empirical materials were derived during research visits to the six sites; the method used consisted mainly of qualitative interviews with actors from local (EP) administrations and politics as well as representatives of local NGOs and the mass media (see Ran 2009: 12ff, 281ff for more details). Relevant documents and statistical data were analysed wherever available and credible.

## Characteristic Problems of EP Policy Field and Policy Formulation

(Note: All “episodes” in this paper describe specific observations in the research field and highlight the general arguments.)

Episode 1: Local vegetable farmers told us, “We had always thought that the increasing use of groundwater for our greenhouses was without risk; now we have been told that this water is spoiled by salty water from the ocean – although we are about 50 kilometres away from the coastline.”

Episode 2: In a TV report, climate experts were shown on the Zugspitze (the highest mountain in Germany); one of them said: “The dirt (pollution relicts) we found here in the snow originated from New York City.” (We also include some episodes – like this one – from Germany in order to show similarities in implementation procedures and gaps.)

Episode 3: Problem identification was not always easy. In one part of the interview (rural case), we were told that there are no problems concerning soil contamination by the use of fertilizers; later in the interview, we learned that information campaigns and training courses are organized permanently – in order to convince the farmers to “reduce their excessive use of fertilizers”.

Description and analysis of a policy field must start with implicit comparisons of the collective problems or public tasks involved, since the policy field originates from them and develops within them. The most important aspects that might shape the implementation gap must be identified: For example, are specific problems present that may complicate the tasks or create atypical risks within the policy field of EP? The answer to this question may be very complicated and may involve a long list of issues related to the preservation or restoration of viable conditions for human beings and the flora and fauna of our planet. In the

following, only those elements will be mentioned which are specific for EP and which are not found in other policy fields in the same way or to the same degree:

### *Societal Communication*

Here we borrow from Niklas Luhmann (1986) and his system-theoretical view of EP. Coming from a social sciences perspective, he defines societal communication as the constitutive element of all social systems and their internal coordination. In this context, therefore, it is not surprising that the vast majority of problems tackled in policy fields refer to social or societal constructs related to the general population or parts of it – for example, health, social welfare, education, science, security, public order, transportation, economy, revenue, etc.

The question of how policy fields are delineated in general, and what problems and demands are connected with policy fields and/ or individual policies, is likewise an element of these social constructs. After all, problems in this context are articulated by people, stakeholders, functionaries, etc. In instrumental terms, this means that these social constructs can also be changed, even in comprehensive form.

However, all this is different in the EP context: Nature does not communicate and it cannot be abolished; it is the physical context in which societal (communication) systems exist. Although “nature” is also influenced by social perceptions and constructs (“It is there for our exploitation”), it is not a self-contained social construct.

Typically (and originally), communication about nature involves concern about the dangers stemming from it: People become afraid and react. This is often a reaction to specific regional disasters like earthquakes, floods, tornadoes and desertification. Another type of communication about nature is its use as a resource which allows the survival of people within a specific territory. In both respects, people speak in their own interest: Nature is viewed as an object to be feared or utilized. In this context, communication about nature will address different issues (dangers, potentials for exploitation) in different places. The EP issues and various features of the implementation gap, therefore, are not under the complete control of policymakers and implementers.

### *Advocacy of Nature*

An important dimension of international as well as regional comparison of EP efforts is the scope and intensity of commitment to the defence of



nature. This is a reaction to man-made impacts on the natural environment: pollution of air, water and soil, and destruction of flora and fauna. Concern regarding this situation, of course, increases with the scope of damage and personal distress. To summarize, there are both universal problems and those specific to certain areas and societies. All of these can be of concern in the EP policy field and can result in specific implementation gaps.

### *Interconnected Problems of EP*

Many aspects of the environment (like the soil, air and water) are interconnected: An unwanted transgression of borderlines is possible and typical in many respects.

### *Cross-sectional Policies*

Such interrelationships make it difficult to delineate EP as a policy field. The term “cross-sectional” indicates that EP policies may include interventions into other policy fields (like the economy, health, transportation, agriculture, etc.), often leading to conflicts. The term “sustainability” is of key importance regarding these issues. Last but not least, environmental problems may even cross national borders and become an international issue – as the global warming debate indicates.

### *Intangible Problem Issues*

In both the long and short term, neither the natural phenomena (for instance, earthquakes and volcanic eruptions) nor the implications of human intervention (for instance, CO<sub>2</sub> emissions, atomic power, acid rain) addressed by the EPBs are always completely understood. Sustainable development, while indispensable as a concept in this context, by no means provides a comprehensive answer to such intangible problems.

### *The Conclusion*

The specific character of EP problems plays an important role in the implementation of EP and its success or failure. Because natural phenomena are found everywhere, many problems related to them are similar everywhere in the world, more so than in many other policy fields; in this sense and context, EP issues are not specific to China. Nevertheless, their specific character may also produce implementation differences

even in the case of similar problems. To raise a voice on behalf of nature is thus an important element of the policy field.

Are there specifics in China with regard to public and publicized definitions and an understanding of the problem? Is there a trend to speak more often than before on behalf of nature? Is there more awareness of the ambivalent or even destructive character of interventions of mankind into nature?

Many interviews with Chinese officials during the first phase of the project's research in (urban) China (2007) gave us the impression that they did not see much of an EP problem at all at that time. The perspective of exploitation of nature dominated. EP problems seemed to be an issue reserved for future phases of economic and political development – quite similar to the philosophy found in Western industrialization. Quite often a reference was made to the so-called “environmental Kuznets curve” (Levinson 2000).

In the second stage of the project's research in (rural) China (2009), the orientation among Chinese officials seemed to have changed a bit. The awareness of possibly irreparable damage was communicated more often. The long-term and far-reaching effects were acknowledged – including the costs of environmental disasters, which are “melting away” the economic growth rate. Reference was also made to growing EP policy concerns of the central government and an increasingly frequent discussion of EP issues in civil society – the latter discussion having been prompted by emerging new communication technologies like the Internet and mobile telephones. More information about EP issues was available in the press, and the number of citizen action groups was increasing. Nevertheless, EP awareness on the part of the population was less articulate than it was among EP officials (CASS 2007; Tong 2007; Harris 2008). A comparison of different research sites made it quite clear that EP issues were of less concern to the rural population than they were to urban residents.

If it is true that nature needs advocates to speak on behalf of it, the opinion of the population is an important factor. The number of complaints addressed to EP offices in China has increased by 30 per cent each year since 2002. Most of the complaints come from those affected by noise, smell, water quality, and so forth. In Xiamen (2007), one of the urban research sites, 47 per cent of the complaints addressed air pollution, 33 per cent noise; 10 per cent poor water quality. In a 2007 survey,

two-thirds of the respondents stated that local government was not paying enough attention to EP (Ran 2009: 145ff.).

EP policy fields originate in both problem awareness and the conviction of the population and political and administrative actors that the problem is a public affair. This awareness has emerged in China mainly due to increasing awareness of the destructive impact of both population growth and industrialization.

EP is a “latecomer” among policy fields, with not much more than 150 years of public concern worldwide. One of the most important elements in its development is the formulation of public programmes (laws, decrees, administrative regulations) which identify the problems, define public action, and eventually describe the expected policy effects. In other words, they serve both as a link and a filter between problems and implementation strategies. If incorrectly formulated, such filters can actually aggravate the problem instead of solving it.

Episode 4: One representative of a water supply company said, “It is rather a paradox, because we run a programme (supported by the province government) for the reduction of water consumption, but at the same time we are rewarded if we sell more water to the households.”

Episode 5: A similar policy in Germany encourages the reduction of water use in WCs – a programme which conflicts with hygienic standards and effective sewage processing.

One of the important features of a policy field is the extent to which its programmes are restricted to specific areas or involve issues of other policy fields, with the possibility of conflict. EP (like health) is a typical example of such a cross-sectional policy field. The debate about sustainability is a significant factor here – starting with the Brundtland Report in 1987. EP conflicts involving the economy, ecology, and social inclusion are evident in many decision-making situations almost everywhere and affect both policy-making and implementation. “Problem-related” initiatives have increased worldwide with the over-exploitation of nature and increasing industrialization. The cross-cutting character of the problems has led to many different objects and goals of the programmes and to continuous additions. They react to new forms of interventions into nature, like land use, and risk development, like all kinds of emissions into the air and into the water. But they use quite common policy cycles – for instance: (EP) problem → (EP) strategy → (EP) intervention – and

“typical” or “common” instruments of public policy-making, like centralized, regulative programmes.

EP programmes related to human intervention into nature (especially during industrialization) were formulated rather late in China (compared with Germany, for example). In the meantime, however, Chinese laws and regulations have come to cover a broad spectrum of issues: the EP Law; the Marine EP Law; the Water Pollution Prevention Law; the Regulation on Prevention and Protection against Noise Pollution and Radiation; the establishment of nature reserves; the Law on the Protection of Wild Plants; the Law on Safety Management of Genetically Modified Agricultural Organisms; the Law on Management of Dangerous Waste Operations; the Law on Safety Management of Dangerous Chemicals; the Law on Prevention and Control of Water Pollution, etc. Altogether, since 1949 the policy output in China includes nine laws on EP, 15 laws on the preservation of natural resources, 50 administrative regulations and hundreds of administrative implementation rules (Beyer 2006).

EP needs many voices to argue on behalf of the environment. Independent public voices, media reports, NGOs and EP initiatives are important elements (actors) in the process of policy-making. We should not ignore, however, the fact that many actors act merely in their own interests – for example, as lobbyists who oppose any EP programme that may negatively affect those interests. EP programmes, which originate from central government level, thus often engender conflicts among important actors or with other policies and policy fields. In such a case, implementation gaps may be a consequence of programme deficiencies (Lieberthal 1997).

In this context of a set of problems and interests related to those problems, China follows a “traditional” form of intervention: EP policies are mainly regulatory in character and include assessment strategies as well as sanctions for non-compliance (van Rooij 2003). Examples are (Ran 2009: 54ff):

- “Environmental Impact Assessment” (EIA)
- “Three Synchronizations Policy”
- “Pollutant Discharge Fees” (PDF)
- “Pollutant Discharge Reporting, Registration and Permit System”
- “Environmental Responsibility System”
- “Quantitative Examination System for Comprehensive Control of Urban Environment” (QESCCUE)

- “Centralized Pollution Control”
- “Pollution Control within Deadlines”
- “Creating a National Model City for Environmental Protection” (NMCEP)
- “Total Control of Pollutant Discharge”
- “Regional Permit Restriction”
- “Energy Saving and Emissions Reduction Project”

Other instruments like financial incentives or markets for limited pollution rights have gained attention only in recent years, due partly to international attention and exchanges about EP policy-making (Jordan, Wurzel, and Zito 2007).

The above-mentioned rules and regulations are formulated mainly on the central/ national level and are often specified in detail at lower levels of the PAS – more than 660 on the local level. However, such laws and juridical procedures do not always have a strictly binding character. In particular, juridical prosecution of rule violation in the EP context seems to be rare in China.

Episode 6: Various attempts to conduct interviews with lawyers/ judges (in 2007 and 2009) were rejected based on the argument that Chinese courts lack adequate practical experience with EP issues.

It has to be kept in mind, however, that rule compliance and its juridical control or review is only one side of EP policies: the restriction side. The policies also include enabling elements – like incentives for good practice. And, even more important, local government is “allowed” to do much better in all kinds of EP affairs than minimal policy demands might ask for. The scale of EP performance is only specified on one side (minimal standard definition) but is open-ended on the other side. Therefore, the observation of EP performance is not limited to the identification of implementation gaps but also to the general quality of environmental conditions.

## Local Implementation Structures and Processes

It is a truism that the vast majority of policies need effective implementation procedures in order to be relevant in society. Governments can create hundreds of political programmes without producing any effect so long as they do not attend at the same time to sound implementation

institutions: organization, resources, qualified staff, etc. (Sinkule and Ortolano 1995).

Since the term “implementation” was made prominent by Pressman and Wildavsky in 1973, ever more groups of actors in the policy fields have come to understand its importance. But even today, the analysis of policy fields concentrates mainly on policy-making, often combined with evaluation research. Empirical analyses of policy implementation are still rare.

One reason for this might be the implementation gaps mentioned earlier. Since it is only natural to lay the blame for them at the doorstep of the responsible public actors, it can be expected that these same actors will often try to prevent such analyses and the ensuing embarrassment arising from them. Often the gap will be identified only if accompanied by independent scientific research. Otherwise only personalized reports, whose reliability is difficult to estimate, will be available. One possible way of getting around this is to implement unobtrusive measures about the quality of the environment. This is seen – at least in part – as an outcome of policy implementation and can be used as a starting point for empirical enquiries.

Because people always live within a specific territory, where they face the reality of natural and man-made problems, local PASs plays the key role in policy implementation everywhere. EP issues are mainly local problems (air pollution, noise, garbage, wastewater, water quality) and are often interconnected, quite independently of the possible global effects (for instance, global warming). There is also a “natural” tendency of the population to expect local governments to address EP problems, independently of formal responsibilities for policy-making and/ or implementation. A survey of students in Beijing (Wong 2003) found that students believed local actors should be responsible for EP (government: 43 per cent, enterprises: 28 per cent, general public: 6 per cent); and 57 per cent of respondents suggested strengthening local implementation procedures. Analyses of problems and programmes have identified both a complex set of issues of local concern and the many different organizational and procedural ways to deal with them. Special knowledge and an elaborate division of labour are as important as the recognition of the cross-cutting nature of many EP issues, which together demand local and regional cooperation and coordination.

How is this demanding task handled on the local level in China? And how about the vertical chain of command and control? That is, if

the local level has no real autonomy with regard to implementation, it becomes merely the executor of directives and evaluation procedures “from above”.

Episode 7: Because of soil erosion in a hilly agricultural area, a limit was set for cutting down trees (to plant tangerine bushes). Local officials did not implement this rule; they simply counted the newly planted bushes as trees and thereby boosted their record as environment protectors.

Episode 8: A factory manager admitted that filters against air pollution were not used overnight in his plant because the quality of pipe emissions (black smoke) could not be seen or measured in the dark.

Episode 9: A representative of an office responsible for cleaning a river (garbage collection) was asked about the river’s water quality. He answered, “I don’t know, because this is an issue for the Health Office.”

Episode 10: When asked about reasons for the lack of garbage collection, a village official told us that there was no money to pave the dirt roads leading to it, so garbage trucks refused to come to the village.

Episode 11: After an EP-oriented local party secretary retired, his successor abolished many voluntary local EP initiatives.

Episode 12: In the Ruhr district (Germany), the fight against heavy air pollution by the steel industry started in the 1960s with construction of higher factory chimneys; however, this merely transported pollution to other regions via the wind.

Emerging EP problems can only be observed, and laws and regulations regarding them can only go into effect, if people responsible for their implementation are present on the local level. In China, the complexity of such issues and problems is reflected in a correspondingly complex architecture of local administration (county, city or village). Inasmuch as EP issues stem from both natural phenomena and the effects of human intervention into the environment, the scope and intensity of tasks for dealing with them vary in different regions or localities. In addition, the size (territory, population) of the respective jurisdiction is also an important factor. Therefore it is not easy to describe how EP is organized locally in China. The first impression and answer might be: “differently”. However, many of the localities have one characteristic in common: There are severe deficiencies of implementation and/ or problem-solving with regard to EP. Because the existing literature gives little infor-

mation about the status quo of local organization of EP in China, the six cases from our research – especially the three rural ones – are described in detail. The information was acquired in all cases from personal interviews, analysis of official documents, media reports, and the Internet.

## Organizational Arrangements in Six Locations

Although the six cases show quite significant variation in the local EP architecture, certain basic, similar features can be expected: The EP bureau is the main administrative actor on behalf of EP. However, this does not mean that all EP-related responsibilities are within its domain. The EPB “normally” shares power and responsibilities with the party secretary, mayor, Development and Reform Commission/ Bureau (DRC), Economic Development Commission/ Bureau (EDC), Planning and Construction Bureau/ Urban Utility and Garden Bureau, Agriculture Bureau/ Forestry Bureau, Water Resources Bureau, Oceanic and Fisheries Bureau (OFB), Maritime Safety Bureau (MSB), Land and Resources Bureau (LRB), Public Security Bureau (PSB), and Railways Bureau. All of these actors constitute the “backbone” of the local environmental policy implementation system.

The reconstruction of special cases has to identify additional features of local implementation arrangements and processes: organizational differentiation in detail; distribution of power to coordinate; staff capacities; involvement of civil society, etc. The six cases give evidence of these variations.

### *Case 1: Deqing County*

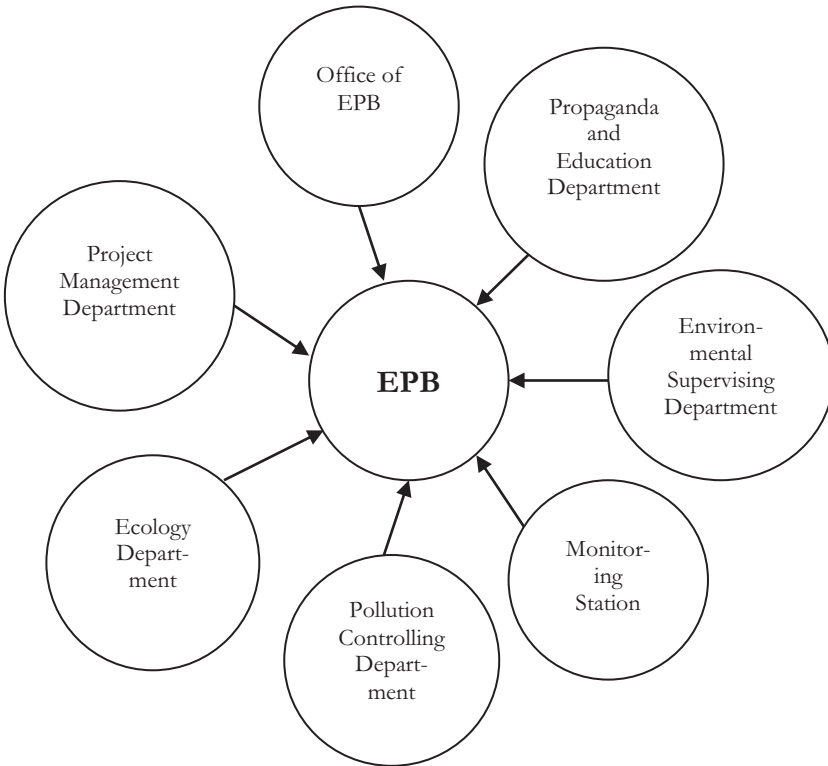
Deqing County is situated in the prefecture-level city of Huzhou in Zhejiang Province. Of the area of Deqing, 43.5 per cent is covered by hills and mountains, 44.6 per cent by forest, 10 per cent by water, and the rest is farmland. Fishery, agricultural goods, wood and tea are the main products of the region.

Environmental problems in Deqing County are related – as often in rural areas – to solid waste, water quality, acid rain, and soil contamination by the bio-chemicals used by farmers.

Government EP organizations in Deqing, especially the main departments, are in part typical for any local administration but differ in some cases according to the specifics of the local situation. The EP bureau in Deqing has the following departments:



Figure 1: Institutions of Environmental Protection Bureau (Deqing County)



Source: Author's design.

### 1. The EPB Office

The central office of the bureau is responsible for the assignments of all its departments: management of logistics, files, and documents; compilation and dispatch of County Environmental Information; establishment of internal regulations for the departments; payment of salaries; education regarding political topics for all staff members; communications of temporary assignments and assignments regarding the county; management of the bureau's finances and properties; compilation of annual financing proposals; establishment of regulations for the financing managements; assignments regarding monthly and annual reports.

## 2. Construction Projects Management Department

According to China's national laws and regulations, this department manages EP for construction projects, approves environmental influence reports, supervises the execution of environmental regulations, checks and approves environmental projects, and communicates the proposals of the environmental review to the project managers.

## 3. Pollution Controlling Department

This office supervises compliance with EP standards. It is responsible for monitoring contaminant discharges in the whole county and supervises how environmental projects carry out discharge control and enforcement of pollution reduction. It is responsible for compiling EP regulations and supervises their implementation, and it promotes green industry and advanced EP technology. It also handles issues of environmental pollution.

## 4. Propaganda and Education Department

This office communicates national EP laws and statutes drafts and supervises the files on EP standards for the county. It is also responsible for education about the EP laws and statutes.

## 5. Ecology Department

This office drafts plans and proposals for ecological EP, directs the construction of ecologically oriented villages, and supervises the protection of bio-diversity and the county's everglade environment.

## 6. Environmental Supervising Brigades

These brigades supervise EP compliance on the part of enterprises, institutions and persons along with pollution and destruction of the natural ecological environment. They investigate pollution accidents and are responsible for settling environmental disputes and ensuring compensation for environmental damage. They assess the fees for pollution discharge.

## 7. The Monitoring Station

This station draws up monitoring plans in accordance with EP regulations and reports the statistics gathered by the plans. It monitors pollution discharge on the part of the county's enterprises and institutions as needed, keeps the resulting information on file, and provides the statistics to other environmental management agencies. It takes part in the investigation of pollution accidents and makes the statistics on them available to others.

## *Case 2: Shouguang County*

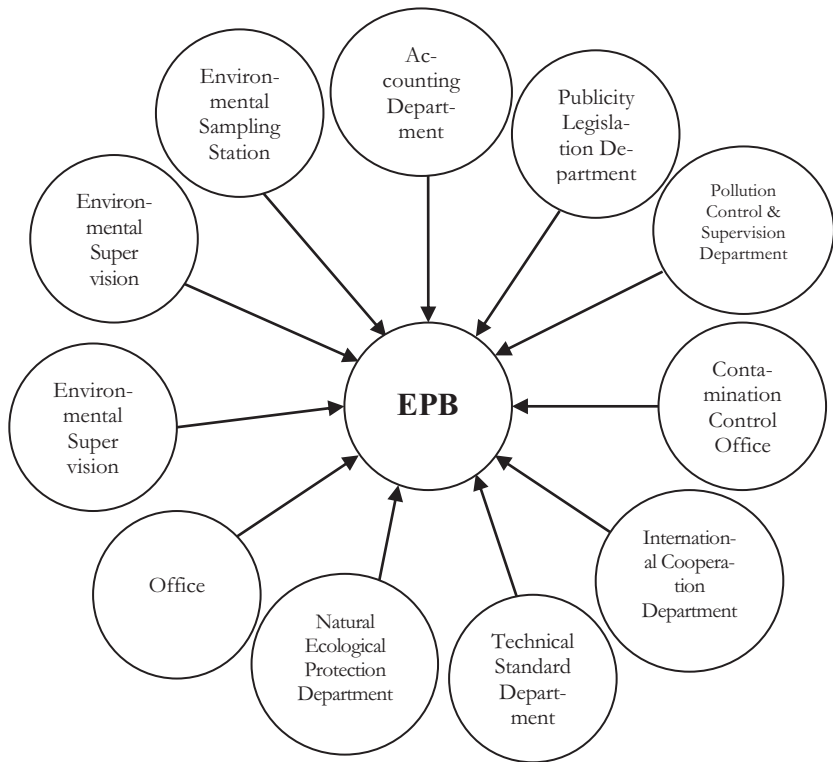
Shouguang is a city located in the centre of Shandong (Province) Peninsula. It is the well-known “vegetable county of China”. There are some 40,000 greenhouses in this region.

Environmental problems here concern salty groundwater, solid (plastic) garbage, and chemical fertilizers and pesticides used for growing vegetables.

The EP agency of Shouguang City consists of the main office, an accounting department, a legislation publicity department, a pollution control and supervision department, a contamination control office, an international cooperation department, a technical standards department, a natural ecological protection department, an environmental supervision centre, an environmental supervision group, and an environmental sampling station. Some of these are listed below with details of their responsibilities:

1. The legislation publicity department
  - supervises the environmental law enforcement,
  - hears the witnesses of administrative punishments,
  - assigns environmental legal systems and institutions, and
  - is responsible for environmental publicity and education.
2. The contamination control office
  - plans contamination control,
  - reports environmental statistics,
  - supervises the contamination reduction process, and
  - examines the contamination control implementation.
3. The international cooperation department
  - cooperating internationally regarding EP,
  - assigns overseas finance, technology and management arrangements,
  - filters the external cooperation projects and manages their implementation, and
  - monitors the conformity with international EP standards.

Figure 2: The EPB in Shouguang



Source: Author's design.

4. The technical standards department

- organizes EP studies and technology imports,
- manages the technological innovations and achievements of EP,
- implements the national industrial standards of EP,
- manages radioactive environments and radioactive scrap, and
- takes part in the emergency treatment of nuclear accidents.

5. The natural ecological protection department

- organizes and compiles programmes for natural ecological protection,
- organizes the natural ecological protection construction,
- supervises ecological protection and construction, and

- cooperates with other responsible departments in significant ecological accidents.
6. The environmental sampling station
- samples several environmental factors,
  - supervises and samples environmental objectives,
  - supervises preventive equipment in pollutant discharging units,
  - investigates pollution accidents,
  - samples, organizes, analyses and stores the environmental data, and
  - compares online environmental samples.

As the two examples indicate, the architecture used to implement basically the same laws and regulations in the rural context is much more differentiated in Shouguang than in Deqing. Especially noteworthy are the Department for Technical Standards – concerning greenhouse technology – and the Department for International Cooperation.

### *Case 3: Nanfeng County*

Nanfeng County belongs to Fuzhou City (Jiangxi Province), so the EPB of Nanfeng County is under the supervision of the EPB of Fuzhou City, which in turn is responsible for EP in the whole area of Fuzhou.

Environmental problems here concern excessive land use and erosion caused by the planting of tangerine bushes on hills and mountains, solid waste, a long-unfinished sewage cleaning plant, pollution from growing industry, and soil contamination (chemical fertilizers).

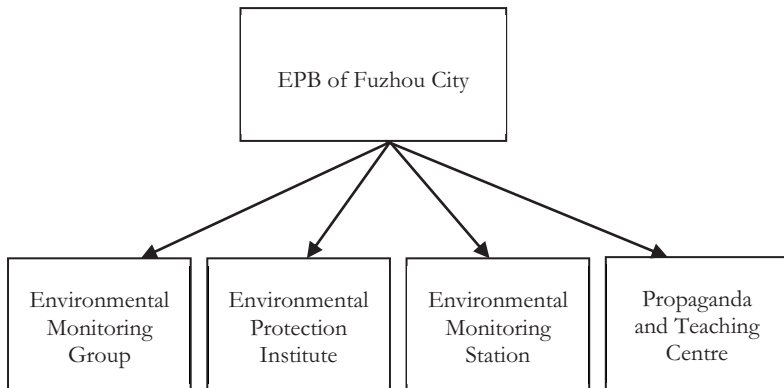
The departments of the EPB of Fuzhou City are shown in Figure 3.

As in most other cases, other bureaus not named here are responsible for specific areas of EP. Some tasks exceed the scope of responsibilities of the EPB and are allocated to separate units. The problem in that case is the coordination and cooperation of activities between EPB departments and related bureaus – a rather typical implementation challenge in a complex policy field. The various bureaus and their responsibilities are listed in Table 1.

This last example illustrates all three dimensions of the division of EPB tasks: special aspects; the scope of actions bureaus with overlapping responsibilities are allowed to take; and the vertical ties between city and county. However, the picture is not complete until relationships with other bureaus affecting issues beyond EP, like that of economic development, are also taken into consideration. These relationships are often the source of conflict with regard to EP implementation. During our

research at the six sites, we found only a few individuals who voiced reflections on the “logic” behind any of the organizational separations or about the necessity to reintegrate (coordinate) tasks across many organizational “borders”. In Nanfeng County, two organizational units had only recently been separated and re-installed as stand-alone organizations; the pro-and-con arguments for such a change were unknown to the responsible leaders of EP. This is just one of many indications that the organizational division of labour and task allocation in China as a whole is not sufficiently subjected to critical review by local administrators (with the exception of Xiamen).

Figure 3: The EPB of Fuzhou City



Source: Author's design.

A look at three examples from the urban research sites shows even larger variations in the scope and structure of EP task allocation.

Table 1: Bureaus in Nanfeng County

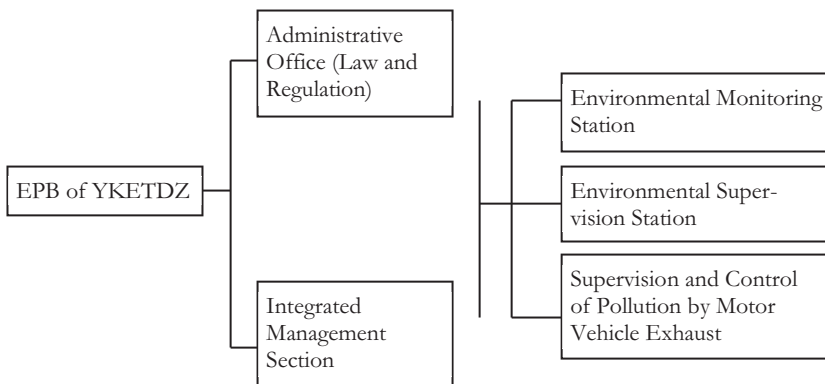
Bureau	Area of Responsibility
EPB	Prevention, supervision and control of environmental pollution
Land and Resource Bureau	Development, utilization and protection of land resources
Forestry Bureau	Development, utilization and protection of forests
Water Resource Bureau	Development, utilization and protection of water resources
Agriculture Bureau	Development and protection of agriculture, agricultural resources and the rural economy
Health Bureau	Supervision and administration of health services
Urban Administration Bureau	Supervision and administration of city sanitation and the urban environment

Source: Author's design.

### Case 4: Ying Kou Economic and Technological Development Zone (YKETDZ)

The YKETDZ is located in Liaoning Province in Northeast China (county level): The main EP problems concern marine and air pollution and (old) heavy industry pollution.

Figure 4: EPB of YKETDZ

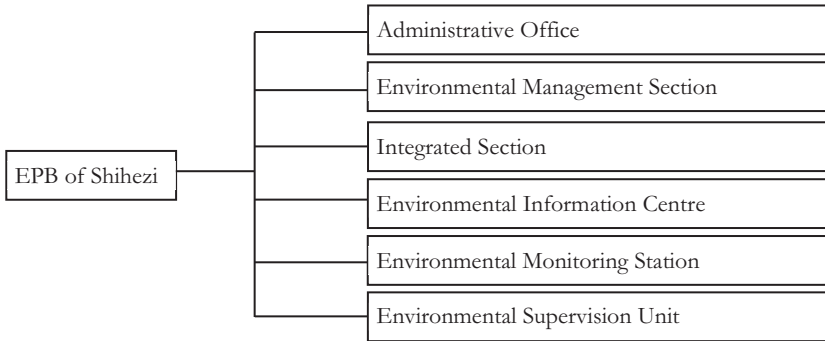


Source: Ran 2009: 101.

**Case 5: Shihezi in the Xinjiang Uygur Autonomous Region in Northwest China (municipality level)**

The main EP problems concern water shortage/ desertification, river and air pollution, and heavy industry pollution.

Figure 5: EPB of Shihezi



Source: Ran 2009:100.

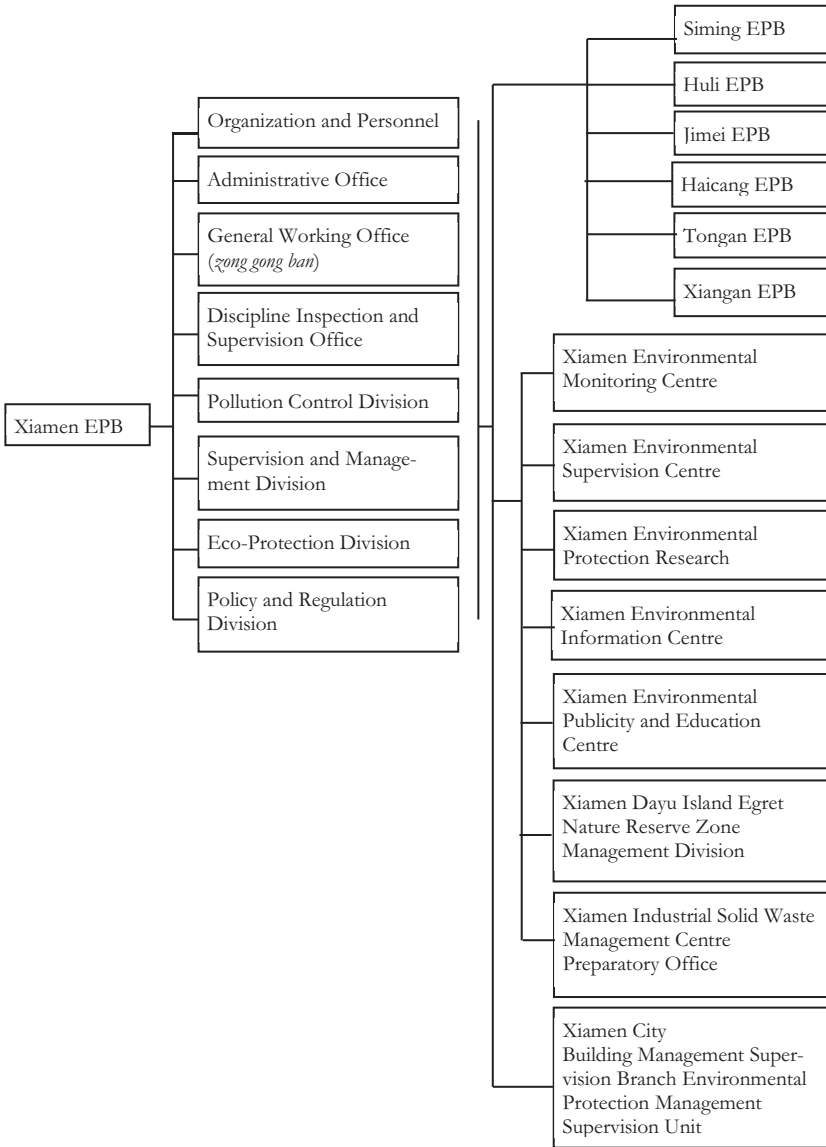
**Case 6: Xiamen**

Xiamen in Fujian Province in Southeast China (vice-provincial level): The main EP problems concern marine and air pollution, pollution from the petrochemical industry, and small business pollution (e.g. restaurants).

The Xiamen EPB has eight divisions and six branches of EPBs at the district level, with seven civil service units, whereas the Shihezi EPB has four divisions and two civil service units, and the YKETDZ EPB has two divisions with a single civil service unit. The Xiamen EPB has 165 official staff members, while the Shihezi EPB has only 49 and the YKETDZ EPB only 30. Xiamen is the most interesting case because it does not merely divide up the various tasks but also includes special measures for coordination with regard to the district level, on which there is an integration of various task segments. This arrangement follows the recommendations of ISO standard 14001.



Figure 6: EPB of Xiamen



Source: Ran 2009: 100.

In sum, we see quite different EP capacities in these districts, although all are dealing with identical or at least similar problems on the basis of the same national legislation.

Ran (2009: 59) has synopsised measures undertaken in the districts to cope with identical problems:

Water quality: In Xiamen, five projects have been carried out to preserve water resources; 70 per cent of the water is currently treated in sewage systems. In Shihezi, two such projects have been carried out, and 30 per cent of the water is currently cleaned. In the YKETDZ, no such steps have been taken and no sewage systems were found.

Air pollution: In Xiamen, one plant has been closed down, and two important emitters operate with filter systems. In Shihezi and the YKETDZ, attempts to install filter systems at important emitters are still in the planning phase.

Energy and resource saving: Experimental recycling projects were found in Xiamen and a few vague ideas about it at the other sites; aside from traditional burying, similar differences were found with regard to solid waste treatment.

These observations show that administrative capacity and the number and quality of EP projects coincide: the higher the capacities, the more numerous and efficient the EP projects. And, there is also an interdependence between public awareness/ complaints and public action: In 2007 there were 5,662 complaints in Xiamen, 225 in Shihezi and 79 in Yingkou (Ran 2009: 226f).

The interviews at the six sites with altogether about 300 people who perform different functions and roles focused partly on a description of implementation architectures but primarily on the question of the “fit” or “misfit” of these architectures within EP programme requirements, and the challenges in relation to local problem development. The types and numbers of severe EP problems varied from site to site: They included air (pollution; acid rain), soil (desertification; pollution by industrial land use; erosion; use of chemicals in agriculture), and water (salting of groundwater; solid waste in and pollution of rivers and reservoirs). The vast majority of EP issues under discussion were elements of the “human footprint”. In all cases, the interviews identified “gaps” in implementation – that is, the programmes as described should have prevented these problems from emerging or at least should have solved them in short order.

The following propositions about the role of the administrative architectures in contributing to implementation gaps were deduced from the interviews. However, they are still hypothetical in nature because of the small number of cases under observation.

- In China, the individual structure of administrative architectures is an important indicator of the degree of organizational discretion. That is, EP implementation can be heavily influenced by local arrangements, and the quality of the outcome is at least partially a result of local EP strategies. A second source of this variation is the practice of endorsement for successful experiments and models of good practice (network of decentralized EP units in Xiamen, and “new socialist villages” in rural areas).
- The administrative architectures observed in the present study clearly constituted a response to public EP policies rather than a response to local key problems of EP. This was reflected in three areas: 1) EPB responsibilities were directed primarily at pollution – that is, emissions control – following the dominant concern of central policy-making of many years. 2) Other components of EP (like water; ocean; garbage; health) are separate policies and are separated in the administrative architecture. 3) Other policy fields (planning, economic development, statistics, education, etc.) follow the traditional differentiation of policy fields on the central government level.
- Although the EPB seems to be placed in the centre of local EP activities, its potential is very much influenced (often restricted) by political and fiscal support from local government.
- The administrative logic of each local functional division was widely unknown to the staff members interviewed. Conflicts between different policies or policy fields were neither made explicit nor resolved. Cooperation – when present – normally took the path of “negative coordination”: an avoidance of interference with “the business of others”. Often there is a lack of a common goal orientation among the various actors concerned with EP issues.
- There was little effort to coordinate EP actions among administrative jurisdictions – for example, boundary-spanning rivers. In this context, interventions from higher administrative echelons are typical, but they are normally viewed as unwanted interference.
- Resources (manpower, budgets, information, and technical devices for online measurement) fail to match the scope of the EP problems. Even when inspection visits uncover problems, it is extremely

rare for polluters to be closed down, changes to be demanded, or fines to be collected.

- Interventions by CCP functionaries are sometimes either in conflict with EP goals or interfere with the application of EP measures. Local EP officials feel that the juridical system does not assist them in carrying out their work.
- The necessity to make the population familiar with EP issues is widely acknowledged, and information and training programmes are in effect. This also makes reactions by the public (via hotline) easier and more likely. However, such information and complaints on the part of the public trigger mainly piecemeal reactions and do not prompt a review of the country's EP arrangements in general.
- The role of NGOs as partners in EP activities is visible, but their role as informal “watchdogs” of local EP activities has not been formalized because they are still dependent on acceptance or admission by each local government.

Episode 13: According to the reports of an (urban) research site to higher administrative levels, 100 per cent of the industrial projects went through the Environmental Impact Assessment. The interview partner admitted, however, that the local EPB arrived at the assessment seven days after his initial visit – although the assessment procedure should be set up to run over the course of 60 days in each case.

Episode 14: An EPB staff member who was responsible for the control of emissions by all restaurants in the city complained that he has only five people to do the job, but 12,000 restaurants to monitor. In another city, only 50 (of an estimated 3,000) companies have been inspected by the EPB during the last five years.

Episode 15: In the rare cases when fines were collected, the money had to be given to the tax office rather than being used for EP purposes: little motivation to increase controls.

Episode 16: A private person sponsored a prize honouring local EP activities. The EPB of the city was able to name neither the activities honoured nor the winner.

## Staff Recruitment and Qualification

Episode 17: When asked, most EPB interview partners admitted that they are inadequately trained for their job.

Episode 18: Various types of data play an important role in EP implementation. EPB officials complain that the Statistics Bureau, which is responsible for processing these data, lacks the technical background and knowledge required to analyse it properly. Also, a tendency to disclose confidential EP information by responsible actors was mentioned quite often in the interviews with EPB leaders.

An important part of the expert interviews involved questions about staff recruitment and qualifications. EP issues, which deal with natural phenomena, require adequate knowledge and practical expertise. Although some of this knowledge is formulated in public policies in the form of standards or ways to limit harmful effects, etc., it is quite often the case that professionals with scientific knowledge are needed to operate the monitoring equipment and interpret measurement results.

Three aspects can be differentiated regarding EP analysis here:

- a lack of knowledge about processes in nature;
- a lack of knowledge about the effects of natural degradation and/ or disasters on human health; and
- a lack of knowledge about the general and/ or global consequences of human interventions into natural processes.

Looking back on the development of EP policies in China, it is evident that the demand for EP knowledge and expertise there has increased tremendously. Especially the discussion about “global warming” and the role of the Intergovernmental Panel on Climate Change (IPCC) (Giddens 2009; Speth and Haas 2006) provides evidence of this. While it is true that knowledge and expertise of this kind is readily available (on the Internet, for example), China, like other countries and their districts, is faced with the issue of how to make use of it. For example, one of the challenges is to keep up with new developments. Moreover, policy implementation cannot be successful unless this knowledge and expertise also filter down to the local and regional levels.

The field observations of this study showed a gap in both knowledge and transparency regarding the availability and use of knowledge in China. According to the comments of the experts interviewed, resources for staff training are insufficient and new knowledge developments are not always available.

An important reason for this deficiency is the lack of access to independent scientific information and conclusions in China. Xiamen (chemical plant) provides a good example: Critical debate and finally a revision of policy plans were initiated only after a written report by a professor of chemistry from a local university. Moreover, professional and fair evaluations of local practices are also often not present. Further, while the urgency of bringing EP problems and damage under control is often recognized, there are differences in the means of implementing the corresponding remedial measures. In this respect, the watchdog role of the public sphere, which should be a part of the local implementation process, is sadly lacking in China. An important consequence of this is that mistakes or deficiencies on the local level are often camouflaged rather than serving to trigger changes in decision-making; the result: repeated malpractices.

A prerequisite for acquiring EP knowledge is the broad availability of unmanipulated evaluation data. Proper management of the logistics of EP-related knowledge is one of the most important task areas of any given local administrative architecture. What we observed in China was a lack of cooperation between different bureaus (EPB and others) and a lack of information transfer. “I do not know – because this is the affair of another bureau” was an oft-used argument. This probably reflected less a lack of interest in the subject than a reluctance to assume responsibility.

Another lack of communication can be witnessed in regards to different areas of jurisdiction – for example, disputes between national companies and local EP administrations, or between neighbouring counties. The study found that the latter did not communicate directly with each other but acted only when prompted to by higher-level authorities.

Such observations about deficiencies in the division of functions and the logistics of knowledge indicate more than disorganization or a lack of experience: They indicate the fundamental ambivalence – if not dilemma – between task specialization and integration/ coordination. Although all organizational architecture and policy fields are confronted with this ambivalence, the policy field of EP is more directly affected than others because of its all-inclusive nature. Here, it is especially challenging to minimize unwanted side effects.

The above-mentioned dilemma was also an interview topic with regard to staff recruitment. Three reasons were identified for the lack of staff specialization:

- few permanent and too many temporary staff members;
- a low proportion of higher-education degrees (e.g. bachelor's or master's); and
- position appointments by the CCP, often independent of EP qualifications and experience.

These factors were seen as important reasons for deficiencies in both internal and external EPB communication, and they contributed to the implementation gap.

## Macro-Phenomena as the Context of Local Implementation Architectures

Episode 19: In a region with expanding desertification, half of a sandy hill was covered with trees supported by an irrigation system; the other half was only sand. The two counties involved were unable to agree on a joint action programme.

Episode 20: A new (very large) steel company was constructed in a city and was publicly predicted to become the region's biggest polluter in the future. In spite of this, the city EPB received no substantive information about the related pollution risks. Interestingly, the company was under national ownership and jurisdiction.

Episode 21: At one site – a county – researched by the present project, it was common procedure to secretly follow and observe any team of controllers from higher administrative levels to ensure that all “surprise” visits (inspections) would be known in advance.

Episode 22: In North Rhine-Westphalia (Germany), the policy of cutbacks in the last decade also impacted EP administration: Important regional offices for monitoring local EP implementation (Staatliche Umweltämter) were abolished without sufficient awareness of negative local effects.

As described earlier, EP laws and regulations are now quite numerous in China. However, the implementation arrangements can take many forms, and many outcomes are possible. This is a result of the wide leeway for discretion of officials at the local level, who are the ones making these arrangements.

In order to any compare implementation architectures in China, we have to look at the administrative system context, especially as regards the public EP system overall. In general terms, this comes down to a

question of homogeneous (centralized) or heterogeneous (decentralized) implementation incentives in a multi-level system (Scharpf 2007). As the earlier discussion of the quality of EP problems showed, the overall tendency in the design of Chinese EP architectures seems to be heterogeneity, which results from 1) problems that cut across areas of authority and even geography and 2) the involvement of contributions from many different organizations and individuals. This heterogeneity is intensified by the devolution of EP implementation to different PAS levels. Although we find primary legislation mainly on the national level in the form of programme specifications and resource allocation, control of implementation in actual practice is largely left to subnational levels: provinces, municipalities, counties and villages.

The interviews carried out during the project pinpointed four of the most influential factors in this regard:

- Central legislation often fails to resolve conflicts related to the concept of sustainability (in particular by failing to establish priorities).
- EP and other policies lack local coordination regarding the varying scopes of existing EP problems.
- Performance criteria (outcome measures) comply strictly with prescriptions of the central policy level, but less strictly with those of lower administration levels.
- Local investment in EP projects depends on the resources (wealth) of the respective local government.

This can be a restricting factor even when central funds are available because often local co-funding of EP projects is mandatory.

However, there is also a trend towards centralization and multi-level coordination; this is the consequence of seamless or even global problem development, and it is also related to the demand for compatible structures on behalf of effective cooperation. One example is the upgrading of the SEPA to the ministerial level. Another one is the institutionalization of centralized monitoring architectures: Supervision Centres for Environmental Protection (SCEPs), first established in 2002. As already mentioned, coordination between cities or between counties (same echelon) is poor; they often see themselves as competitors for private investments and public subsidies. Consequently, coordination “normally” needs the involvement of higher levels of government – this involvement tends to be interpreted as a command. The resulting public macro-structure is a complicated mixture of decentralized and centralized ar-



rangements further complicated by overlap and conflict with other policy fields (especially the economy). This ambivalence between decentralization and centralization influences the implementation gap and, therefore, is a permanent object of change strategies (Zheng 2007).

How best to describe the impulses toward homogeneous vs. heterogeneous structures and procedures? In China we observe a rather weak administrative chain of decisions and controls, which are not backed by a strict “rule of law” (including courts of administrative law). A second influence is the party hierarchy of the CCP, which has a centralizing impact. In China, such multiple influences are described as “two mothers-in-law”. Finally, proper functioning of this line of command depends on many individual decisions with many competing interests.

There is a high potential for coordinating and implementing directives, but in practice, EP lacks this organization (Edin 2003). Another potential for implementation directives in China lies in the less-developed functional differentiation of Chinese society compared with OECD countries, especially with regard to the PAS–economy relationship: Many industries are still state-owned or state-controlled, and the state is capable of steering the private economy. As a result, the central government is still able to impose EP measures and priorities in an important field of conflict: EP vs. growth of local GDP. So far, EP efforts have not benefited.

This in turn can increase the heterogeneity of local implementation structures: “Local” actors are under the uncoordinated command of different echelons, and there is not enough local power to counteract this by strict local coordination.

To summarize, it is accurate to speak of a relatively high potential for homogeneity in China’s EP-related vertical architecture (for example, compared to Germany). However, this is not often used for processes of strict implementation. This is due in part to fragmented structures and the reliance on regulative policies: One important element of their implementation architecture should be a judicial control structure. Because of the weak rule of law and juridical surveillance in China, this control structure does not function as an effective external tool. Multi-level controls in China are tied together in a kind of closed system of administrative decision-making with very few independent control elements. Evaluative measures of EP are kept within this system and hidden from other actors (like party officials and courts of law). It is not surprising, therefore, that some of the international conflicts in Copenhagen concerned

precisely this topic of independent international control of EP implementation both worldwide and in China. Alternative options are the exercise of control via party structures and staff promotion. But here our research has shown that EP performance is not among the most important criteria for staff promotion in China. Party directives on behalf of EP are rare. They seem to be concentrated on environmental disasters.

Since many EP issues conflict with other interests (and possible veto actors) and/ or with technical options, the laws and regulations normally opt for a “minimal” (not “maximal”) definition of standards, measures and effects (with regard to CO<sub>2</sub> emissions, quality of water, etc.). On the other hand, in China as in other countries, all actors and/ or public institutions are allowed to exceed the minimal demands. Many policies have an enabling character. Therefore, the effect and quality of implementation depends on the implementation actors – who are mainly on the local or regional level. Increasingly more often, this situation leads to interregional competition in the sense of an open contest. Our research identified many such explicitly competitive projects. Although this might conceivably lead to a declaration of “models” or “examples of best practice”, so far the effect of such forms of competition (and their “lighthouse” outputs) on overall implementation quality is limited or even low: There is no “real” market constellation, too much heterogeneity in the status quo, and incentives for imitation of “good examples” are lacking. In contrast to many other policy fields (like city-planning, transportation, health and social services), this instrument of open contest is not suitable for many EP issues because it requires a complex learning and adaptation process. A simple transfer of technology or the building up of infrastructure is often insufficient.

Episode 23: A project aimed at improving the supply of household water in a rural area was in progress and appeared successful. However, the pace of implementation revealed that it would take 20 more years to include all the region’s households.

Episode 24: In a rural area, the project of the “new socialist village” was tied to the local party secretary, whose photo appeared on many posters and bulletin boards. After he and his job were moved to another location, the project rapidly slowed down.

## Summary

This paper has described the results of an empirical study of local strategies for implementing EP in China. The concept of policy field analysis was used to identify factors that influence the outcomes of the EP implementation – or, more specifically, ones that help explain the existence of pervasive implementation “gaps”. The analytical approach permitted three types of comparison:

- Six local implementation sites in China were used to identify similarities and variations in EP administration and its performance;
- a comparative view of other policy fields made it possible to detect problematic specifics in China’s EP activities;
- a few references to actions in Germany highlighted specific aspects of the Chinese EP context.

It has been argued that the results of such empirical observations cannot be formulated in a strictly explanatory fashion because the database is not comprehensive. Furthermore, the summarizing conclusions should be seen as well-founded hypotheses about the factors that generate implementation gaps in the Chinese EP context. Nevertheless, the empirical observations allow us to draw the following conclusions:

- With regard to the types of problems related to EP issues, a combination of *natural* phenomena and man-made interventions into nature – with their many negative effects – is on the agenda. This situation makes the policy field in China quite specific in comparison with others and at the same time similar to those found worldwide. However, the fact that man-made EP problems are very broad in scope and high in intensity in China due to the rapid industrial development there should not be overlooked. In other words, conflicts regarding EP in China are not different in kind but rather in intensity. It is necessary for societal actors to speak and decide on behalf of nature rather than merely reacting to developments. This is true above all in a situation in which the population is already “suffering” from EP deficiencies.
- In summarizing the situation, it can be stated that EP problems are often both complex and seamless with regard to natural media, territory and other segments of nature and society. This puts high demands on public EP programmes and their implementation struc-

ture and strategies regarding the division of labour, expertise and coordination.

- In the six case studies presented here, key aspects of EP varied. Few of the problems (desertification; salting of groundwater) had natural origins; most were man-made, but the problems in rural areas (land seizure by industrial development; soil erosion following deforestation; overuse of pesticides; plastic garbage; polluted rivers; non-potable water, etc.) differed from those affecting urban areas (air pollution from industry restaurants, motor vehicles, and special garbage (drug relicts); polluted rivers and water reservoirs, etc.).
- Existing programmes directed at EP issues cover almost all of these problem areas. They are basically formulated on the central government level and filter from there down to the various lower echelons. The existing implementation gaps at the local level are the consequence of insufficient effectiveness of the rule of law. It is very seldom that compliance with EP regulations is enforced by appeals to the responsible courts of law.

This has not only *ex post de facto* effects but also inhibits necessary preventive (anticipatory) functions. The central government is also responsible for the general architecture of the PAS in the sense of both their constitutions and their administration design policies. Therefore, deficiencies in national policy-making – with regard to rule of law, administrative macro-structures and coordination between policy fields – are relevant causes of implementation gaps.

Another aspect can be identified by looking at Germany, where the numbers of political and societal (NGO) actors who impact policy-making are larger and are often very vocal in presenting their aims within a democratic context – thereby putting the conflicts very early on the political agenda. In China, the impact of NGOs on policy development is still very small (Yang 2005); there is more presence concerning practical work on the local level: distributing information, collecting garbage, planting and watering trees, etc.

- The overall implementation structure is fragmented in China, where a “double bind” of public administration and local party directives (including career incentives) makes consistent policy implementation rather unlikely. As a result, local variations in implementation structures and processes tend to be numerous and mostly represent reactions to EP policies or attempts to deal with special regional EP problems.

- The scope and the severity of implementation gaps varied in the six cases studied. The implementation gaps found on the local level involved the following key factors: insufficient financial resources and control capacity; dependence on local political will and priorities; lack of reflection on administrative arrangements; inadequate instruments of coordination within the three rural settings: EPB, EP policies and EP issues across territorial boundaries; inefficient data-processing and information logistics; a lack of relevant knowledge and training among staff members; and little impact from NGOs and complaint systems.

These key factors were common, but all were not always present in the six observed cases. For example, we found better EP performance in the areas that were more politically engaged in EP issues (Shihezi) and in those that had intelligent coordination tools (Xiamen), more financial resources (Shouguang), larger staffs (Xiamen) and/ or greater technical and scientific knowledge (Deqing).

- There are many incentives for China (and other countries) to improve EP policies and standards, including prizes and additional funding. However, opportunities and incentives for “copying” good examples are currently inadequate. The truism must be repeated that every “solution” concerning EP problems and implementation arrangements in China and elsewhere is imperfect, with both strengths and weaknesses. Therefore, the search for improvement is continuous, along with the will to face new challenges and risks.
- The wider context of local EP implementation in China, meaning its political programmes and PAS macro-structure in China, is more of a hindrance than a help. This is due to insufficient involvement of a rule of law, the restricted role of civil society, the complicated system of staff placement and control structure by the “two mothers-in-law” (public administration and the CCP), inadequate concepts of “*Verwaltungspolitik*” and an over-cautious subordination of EP issues in the list of national goals defined by the central government.

Even in this wider context, however, many aspects of local discretion offer the hope of achieving better EP performance. The similarities of some of China’s EP problems with those of other countries could make it possible for China to find successful models of local EP implementation.

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