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Environmental Governance in India, China, Vietnam and Indonesia: A Tale of Two Paces

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This paper draws on research conducted by the authors in 2009/2010 for the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on the state of environmental governance in China, India, Vietnam and Indonesia.

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Abstract

After decades of economic expansion, largely at the expense of environmental quality, new trends in environmental governance are taking shape in Asia. This paper analyses these developments in China, India, Vietnam and Indonesia. It finds that environmental governance within a “traditional” agenda of environmental protection remains severely hampered by capacity constraints. Simultaneously, all four countries have embarked on ambitious policy initiatives to address climate change and promote clean technologies, signaling an important shift in national priorities. The paper discusses possible implications of these trends, sketching possible scenarios for the further development of environmental governance.

Keywords: Climate change; Environmental governance; Clean technologies; Asia; China; India

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1 Introduction

The rapidly industrializing countries of Asia have undergone a remarkable process of economic development. Economic progress that took centuries to be realized in the West is being accomplished in decades in Asia. This rapid economic expansion is accompanied by corresponding pressures on natural resources and environmental quality. Since the turn of the century the region has become the world's largest consumer of resources. Moreover, the intensity of resource use is more than 50 percent higher than the world average. Similarly, pollution levels are continuing to increase in tandem with economic growth (UNESCAP, ADB, & UNEP, 2010). As indicated by these data, rapid economic development, which is fuelled by high levels of resource consumption, has taken precedent over the long-term need to preserve the environment. Governmental policies have focused on economic management and the preservation of social stability, neglecting the development of corresponding policies for environmental protection.

However, economic development is not only a driver of environmental deterioration. Increasingly it is also a motivation for efforts to increase resource efficiency. The limits of a development model built on the production of low-value-added, resource-intensive exports have been recognized. This insight has been further underlined by the global financial crisis and its impact on the ability of Western markets to absorb Asian exports. Moreover, as an increasing scarcity of natural resources drives up input costs, investments in resource-efficiency as well as renewable energies become increasingly attractive (Association of Academies of Sciences in Asia, 2011). Finally, with demand for clean technologies increasing internationally, it has become an important source of current and projected economic growth, with Asian countries competing for leadership in these expanding markets.

In addition to these economic imperatives, the international debate on climate change is providing further impetus for change. On the one hand, emerging countries are under increasing pressure from industrialized countries to offer a commitment to reduce carbon emissions and increase efficiency. On the other hand, the particular vulnerability of the region to the impacts of climate change is inducing governments to formulate corresponding policies.

These developments help explain why environmental issues are beginning to feature more prominently on the agendas of these emerging economies. Governments in the region have come out strongly in favor of supporting a transition to a more environmentally friendly development model, launching a number of regional initiatives. At the 5th Ministerial Conference on Environment and Development in Asia and the Pacific, they adopted the Seoul Initiative on Environmentally Sustainable Economic Growth (Green Growth) and launched the Regional Implementation Plan for Sustainable Development in Asia and the Pacific, 2006-2010. Both initiatives provide frameworks for policy consultations and capacity-

building for the promotion of environmentally-friendly development (UNESCAP, 2005). Similar trends are visible at the national level. A number of Asian countries have begun focusing significant resources in the environmental policy field, particularly in the area of climate policy and the development of clean technologies. Innovative policy approaches and a high-level commitment to environmental issues are beginning to reshape environmental governance in these countries.

This paper takes a closer look at how these developments are taking shape in four Asian countries (China, India, Vietnam, and Indonesia). Based on a framework inspired by the concept of capacity for environmental policy (Jänicke & Weidner, 1997, 2002) the paper explores the development of environmental governance in the respective countries, distinguishing between a traditional and a modern agenda of environmental protection. We argue that differing pressures and incentives in the respective realms of environmental policy have given rise to an unbalanced process of capacity development. While capacities in the traditional environmental policy field remain weak, the modern agenda has advanced at a much higher pace in recent years. The combination of international pressure in the field of climate change as well as incentives offered by the rising demand for green products have driven rapid advances in the realm of climate policy and clean technology development. Based on this disaggregated perspective, the paper finally draws a number of conclusions regarding the future of environmental governance in the four countries and highlights a number of opportunities for further capacity development.

2 Capacities for Environmental Governance

We define capacities as opportunity structures for actors to pursue goals of environmental protection and implement respective measures. This broad definition is in line with earlier work of Jänicke and Weidner (1997) and Weidner and Jänicke (2002) and goes beyond the narrow understanding of administrative capacities only (Boerzel, 2000; Peters, 1996). Such comprehensive capacities entail:

- the legal and institutional framework;
- the knowledge base for taking decisions;
- governmental organizations that are capable of enforcing decisions or which provide the incentives for actors to change their behavior
- institutions and mechanisms to enforce the integration of environmental concerns in other domains of decision making.

These capacities for environmental governance describe the potentials for protecting natural resource and to limit emissions. They entail the legitimacy to act, the resources (budget, staff, knowledge) to take decisions and their surveillance and enforcement. Furthermore, it is recognized that environmental governance is not limited to the State only. Important capacities are also provided by non-state actors, such as actors and management

systems within business, the media and civil society. Although the main focus in the following analysis is placed on the public sector, the role of these actors, in particular civil society is also briefly considered.

Furthermore, due to different drivers and problem structures, capacities for environmental governance are issue-specific. A country may have high capacities for e.g. the protection of biodiversity, but at the same time a lack of capacities for e.g. the management of hazardous chemicals (Klaus Jacob, Busch, & Künkel, 2007). In this paper, we distinguish between capacities in two broad areas of environmental protection. On the one hand, there is the traditional agenda of pollution control and natural resources management, beginning its development in the 70s and 80s. On the other hand, there is a modern agenda focused on clean technologies and climate policies, which has emerged more recently and which has received increasing attention in the past years.

Ecological modernization theory would suggest spillovers between different issue areas of environmental protection. New actors, institutions and increasing preferences for a clean environment are expected to enable further advances in environmental protection (Jänicke & Weidner, 1997). With this in mind, we compare these two areas of environment governance in India, China, Vietnam and Indonesia. The selected countries represent important emerging economies that have witnessed rapid economic development in the past decades. We shed light on how this is being complemented by the emergence of differing modes of environmental governance.

3 The Development of Traditional Environmental Governance

The following section provides an overview of how the traditional environmental policy agenda has developed in the four countries over the past decades and identifies the remaining constraints for effective environmental management. Each section begins with a brief synopsis of the country's broader development trajectory, followed by a more detailed analysis of parallel advances in environmental governance. It concludes with a summary of key similarities and differences between the four cases.

3.1 India

In 1991, a severe macro-economic crisis helped trigger a series of economic reforms that have placed India on an impressive growth path ever since. Building on a number of steps taken in the 1980s, India turned its back on its highly regulated, inward-oriented development model. The government opened the economy to greater private sector participation, dismantling industrial licensing, reducing the role of state-owned enterprises and encouraging foreign-direct investment (Das, 2006). Embracing a more open trade policy regime, import licensing was abolished, tariffs were slashed and the exchange rate liberalized leading to a devaluation of the Rupee (Ahluwalia & Little, 1998). The economic results have been impressive with annual growth rates averaging just below 6 percent throughout

the 1980s and 1990s and accelerating to more than 7 percent since the turn of the century (Ahmed & Varshney, 2008).

While India's transition from a dirigiste to a modern, incentive-based model of economic management has fueled rapid economic expansion, environmental management practices have failed to keep pace with these changes. Environmental governance still adheres to a command-and-control approach recognized as increasingly inadequate for managing the country's diverse set of environmental challenges. The instruments available to the environmental authorities no longer match the complexity of the Indian economy and the multiple sources of environmental pollution, including a heterogeneous industrial sector, unmanaged urban development and overstretched infrastructure. Most significantly, regulations are largely designed to control large point pollution sources, ignoring the important role played by small and medium-sized businesses and the cumulative nature of environmental impacts (World Bank, 2006). Moreover, regulators lack the required instruments for imposing credible sanctions on those violating environmental standards. As a result, environmental agencies are largely dependent on the courts for enforcement. However, the judicial process is not only slow, it also frequently favors the defendants who benefit from inadequate monitoring procedures on the part of the regulators (OECD, 2006b).

The government has officially recognized the need for more fiscal and market-based instruments in its Policy Statement on Pollution Abatement published in 1992 (Sankar, 1998, pp. 4-5). In 1995, it followed up on this statement and created a task force to investigate the scope of market-based instruments for controlling industrial pollution. Despite these efforts, market-based instruments still play an insignificant role in the country's approach to environmental management. Moreover, existing fiscal instruments largely aim to promote compliance with regulatory standards, rather than providing dynamic incentives for investments in pollution control. For example, a 25 percent rebate on water cess is provided to firms that comply with relevant standards regulating water use (OECD, 2006b, p. 22). The cess itself, however, is not high enough to provide any relevant incentive for increased investments (Kumar & Managi, 2009, p. 44). A number of approaches combining subsidies with informational instruments have shown positive results but remain limited in their scope. The most successful schemes have combined tighter environmental standards and stricter enforcement with subsidies and technical assistance (World Bank, 2006, p. 40). However, to date these integrated approaches remain local pilot schemes waiting to be scaled up. The national Eco-Label Program ECOMARK on the other hand has had little success in enhancing environmental performance, failing to attract significant participation by the private sector (Kern, Kissling-Näf, Landmann, & Mauch, 2001).¹

¹ See also Ecomark scheme cries for industry attention, June 10, 2006, *Financial Express*.

Despite early efforts to establish the required institutions for environmental governance, institutional constraints represent another key bottleneck for effective environmental protection. Following the 1972 UN Conference on the Human Environment in Stockholm, the Indian government created the National Committee on Environmental Planning and Coordination (NCEPC), implementing first policy measures shortly thereafter. With the Water (Prevention and Control of Pollution) Act of 1974 national and state-level environmental agencies (the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCB)) were created (Sankar, 1998, p. 11). These statutory bodies are responsible for implementing and enforcing legislation related to water and air pollution (Kumar & Managi, 2009, p. 42). The next step was taken in 1980 with the creation of the Department of the Environment. This was converted into the current Ministry of the Environment and Forests (MoEF) in 1985, responsible for “the planning, promotion and coordination of environmental and forestry programmes” (India, 1995, cited in Kumar and Managi 2009: p. 41).

Despite its inadequacy to respond to the increasingly complex set of environmental challenges, this institutional structure has remained in place ever since. Responding to these shortcomings, a number of government reports have called for an institutional redesign of both the ministry and the CPCB. In a recent report, the MoEF stated, “there are gaps in the institutional mechanisms”, and “[q]uite clearly, while our environmental laws have been progressive, implementation by government agencies has left much to be desired. The institutional structures in their current form are inadequate for responding to the emerging environmental challenges” (Ministry of Environment and Forestry (MoEF), 2009, p. 2). A major shortcoming relates to the gap between central and state-level authorities, preventing consistent implementation of federal legislation. Although the CPCB has formal oversight over the SPCBs, there are few formal coordinating mechanisms. Moreover, SPCBs are embedded in a dual command structure, as they also receive funding and directives from state-level governments (OECD, 2006b, p. 14). Moreover, capacity of different SPCBs is highly uneven, with the number of technical staff ranging from 300 to only 4. This finds its parallel in the uneven financial means of the SPCBs whose budgets are largely financed by highly divergent state-level water charges (OECD, 2006b, pp. 11, 14).

Horizontal policy integration also suffers from a lack of coordination across India’s highly fragmented ministerial structure, a challenge recognized by the government in its Eleventh Five Year Plan (Planning Commission, 2007, pp. 191-192). To address this problem, the government has proposed a number of measures, including converting the CPCB into a full-fledged Environmental Protection Authority with an expanded mandate and creating “an independent, statutory body on sustainable development with the specific responsibility of guiding government policies and programs for making them more socially and environmentally sustainable, and to monitor and evaluate their outcomes” (Planning Commission, 2007, p. 192). To date, none of these proposals has been implemented, and environmental policy integration within policy and planning remains rudimentary. At the project level,

environmental impact assessments (EIA) have been made mandatory for a relatively wide spectrum of industrial projects, although enforcement is restricted to larger firms (OECD, 2006b, pp. 15-16).

These deficits in the implementation of environmental policy are contrasted by a fairly comprehensive legislative framework developed since the mid-1980s. In response to a catastrophic accident in a US-owned chemical factory at Bhopal, the government passed the Environmental Protection Act (EPA) in 1986. Along with the MoEF, the EPA established an overarching framework for environmental policy in the country. In direct response to the Bhopal incident, the law also contained regulations for the management of hazardous waste and established procedures for the prevention and mitigation of environmental impacts from industrial activities. The EPA has since formed the basis for the further development of environmental legislation, including legislation in the areas of transport, wild life protection, biodiversity protection, energy efficiency and water resources management.

Parallel to these legislative developments, a landmark decision by the Supreme Court in 1985 played a central role in shaping environmental governance in India. Due to the pollution of local spring waters, local groups in the state of Uttar Pradesh had initiated a lawsuit against local limestone quarries, claiming their constitutional right to a healthy environment. The court upheld this right and ordered the closure of 53 out of 60 lime quarries in the State (World Bank, 2006, p. 18). This legal precedent established public interest litigation as another central pillar of Indian environmental governance, giving the judiciary a key role in driving policy changes. Where government intervention is considered inadequate, local civil society groups have frequently turned to the courts to force state action.

The role of public interest litigation has remained a distinct feature of Indian environmental governance. Moreover, it has helped promote a very vocal and at times combative civil society. The emergence of environmental activism in India has been closely linked to social conflicts over access to natural resources and large infrastructure projects. Especially disputes over the use of the country's forestry resources as well as large scale transport or industrial projects remain important topics of public confrontation (Gadgil & Guha, 2007, p. 388; World Bank, 2006, p. 18) In more recent years, the growing middle class has added an additional dimension to public pressure for an improved environmental quality. Advocating for quality of life improvements, this green constituency has emerged as a driver for better pollution control in India's urban centers (Narain & Bell, 2005).

3.2 China

The rapid rise of China to one of the world's economic power houses and largest consumer markets is well known. Initiated by Deng Xiaoping in 1979, China's liberalization process has proven highly successful in driving economic growth. GDP per capita² today is more than 20 times its level in 1981. While the Chinese economy has surged ahead, environmental governance has only seen gradual development, lagging behind not only Western countries but many of its Asian neighbors. As a result, pressures on the environment have continued to grow. The challenge of the country's deteriorating water resources are an important case in point. In 2006, only 40 percent of water resources remained suitable for drinking and fishing, and 28 percent were not even suitable for industrial use (Qiu & Li, 2009).

Officially, environmental policy development in China has gone hand in hand with economic liberalization. It began in 1979 with the adoption of China's first Law on Environmental Protection, which remains the basis of Chinese environmental policy. In 1983, another important step was taken when the State Council elevated environmental protection to a basic state policy (Wang, 2010, p. 1207). Having completed a ten-year trial period, a renewed version of the Law on Environmental Protection went into force in 1989. This updated law introduced several new principles and instruments of environmental policy, including the discharge permitting system for environmental and emission standards, the so-called "Three Synchronisations" as a standard for licensing industrial plants³, as well as environmental impact assessment (OECD, 2006a; J. Watts, 2011b). Shortly thereafter, the 2nd National Conference on the Prevention and Control of Industrial Pollution developed the "Three Shifts" approach to regulating industrial pollution. The point of regulation was shifted from managing the wastes and damages of industrial activity towards reducing them in the industrial processes (Zhang & Wen, 2008, p. 1252). Continuing the focus on managing industrial processes, the end of the 1990s saw the introduction of the ISO 14000 Environmental Management System after a pilot phase supported by international partners. In 2003, the Law on Cleaner Production was adopted, requiring local governments to support cleaner production measures by issuing handbooks, conducting trainings and providing financial incentives. In recent years, a number of measures, including the introduction of

² Based on current US dollars. see <http://data.worldbank.org/>.

³ The system of the "Three Synchronisations" mandates "that (1) the design, (2) the construction; and (3) the operation of a new industrial enterprise (or an existing factory expanding or changing its operations) be synchronised with the design, construction and operation of an appropriate pollution treatment facility" (OECD, 2006, p. 22).

environmental impact assessments and provisions for imposing sanctions on firms violating environmental standards, have followed (Wang, 2010).

While most gaps in the legislative framework have been eliminated, a significant challenge has been the formulation of consistent implementing regulations. Authored by different entities at different points in time, the resulting regulatory framework is characterized by a high level of complexity (Zhang & Wen, 2008, p. 1252). National ambient and emission standards for the most important air, water and soil pollutants are in place, but may be adapted by local authorities to fit their needs. As a result, in addition to more than 40 regulations and 500 standards at the national level, approximately 1000 local-level regulations have been established (Stalley & Yang, 2006). Firms are, therefore, frequently confronted with differing environmental standards, issued at different levels of government. Furthermore, environmental charges have been introduced for exceeding established environmental standards but are generally too low to provide any incentives for businesses to reduce their emissions (Chen, 2009, pp. 22-23; Wang, 2010, p. 1208)

To counter-balance the ineffectiveness of these instruments, the Chinese government has recently begun experimenting with reward schemes for companies that can demonstrate a particularly strong performance in environmental management. These companies receive not only public recognition for their achievement, but may attain privileged access to government subsidies, enjoy accelerated permitting procedures and less frequent inspections (OECD, 2006a, p. 36). The government has also experimented with trading schemes in sulphur dioxide emissions. However, after concluding two pilot phases at the city (1990 to 1994) and the provincial level (2002 to 2003), the schemes were discontinued.

The institutional framework for environmental governance remains fairly weak, making policy implementation a particular challenge. In 1985 the government created the National Environmental Protection Agency (NEPA) to monitor local and regional air pollutants, but left responsibility for policy implementation with sectoral ministries. It took more than a decade, until NEPA was upgraded to the State Environmental Protection Agency and attained full ministerial rank. In 2008, it was renamed the Ministry of Environmental Protection (MEP) and finally became a permanent member of the State Council, a key to increasing its political authority. The ministry's capacities in terms of staff and funding have been moderately increased since this formal upgrade (J. Liu & Diamond, 2008, p. 37; Qiu & Li, 2009).⁴ Accordingly, government expenditures on pollution control and enforcement have also increased in recent years (Remais & Zhang, 2011).

⁴ As a comparison, Liu and Diamond point out that MEP has only one eighth of the United States Environmental Protection Agency's staff (Liu & Diamond, 2008, p. 37).

Despite these positive signs, the ministry's mandate remains relatively weak and overlaps with those of other sector ministries (Qiu & Li, 2009). Moreover, environmental policy making is still largely controlled by the National Development and Reform Commission (NDRC), which itself remains dominated by economic imperatives (OECD, 2006a, pp. 15-16). Especially in the area of energy policy, the importance of MEP is marginal, and the economic interests of the powerful state energy companies continue to have an important influence on policy development.

Local administration of environmental policies is managed by so-called Environmental Protection Bureaus (EPB), which exist at the district, municipal and provincial level. Financially dependent on the respective local government, they typically lack proper incentives and resources to take on conflicting interests of local stakeholders (Qiu & Li, 2009; Tao & Ngar-yin Mah, 2009). For instance, early polluter pays scheme have proven ineffective, as they lacked effective incentives for both the polluting firm and the local EPBs. Firstly, the charges were lower than the costs of addressing the actual problem. Secondly, had they enforced the prevailing standards, local authorities would have reduced their revenues from the scheme (Zhang, Wen, & Peng, 2008, p. 133). Another challenge for local implementation is a highly ambiguous distribution of authorities across the different levels of government. According to the Environmental Protection Law, the EPBs at the provincial, municipal and district level all retain virtually the same authority to manage environmental affairs, although they may have distinct strategies and interests. This unclear distribution of authority leads to competing interests and conflicting goals between different EPBs. In other cases, EPBs may ignore violations of environmental regulations based on the assumption that another EPB is responsible (Qiu & Li, 2009).

In some cases, this inadequate framework for policy implementation has been counterbalanced by heavy-handed intervention by the central government. A striking example is the action taken to clean up the Huái Hé river. Industrial emissions directly discharged into the river had led to unmanageable levels of pollution, so that the government decided to simply close down a large number of polluting businesses. Between 1996 and 2000 more than 80,000 small firms in highly polluting sectors, such as paper and pulp production, textiles, chemical industry and agriculture, were forced out of business (Zhang & Wen, 2008, p. 1251).

Though not a system-wide solution, these interventions demonstrate the important role that central planning continues to play. Another important element in this regard is the use of long-term plans to integrate different and at times conflicting policy goals. The five-year plans issued by the NDRC regularly contain the goal of strengthening environmental protection (J. Liu & Diamond, 2008, p. 37). A strength of the plans is that they develop clear and verifiable goals - such as to increase the share of renewable energies to 15% until 2020 (likely to be met early) or the reduction of water use by 30 percent by 2010, which was exceeded (German Ministry of Environment (BMU), 2009; National Development and

Reform Commission, 2011, pp. 399-400). Early attempts to develop a Green GDP indicator to strengthen policy integration in the planning process have been stalled, however, after scientific studies provided estimates that environmental costs amounted to between 7,5 and 15,6 percent of annual economic growth (Morton, 2005, p. 132; Zhang et al., 2008, p. 136). Finally, the government has issued a number of environmental policy plans, including a sustainable development strategy and the China Trans-Century Green Project. These strategies primarily serve as catalysts for pilot projects, which may later influence broader policy development.

While environmental policy making is generally top-down, originating from the central government, it allows for a limited form of citizen involvement through so-called government-organized non-governmental organizations (GONGOs), as well as some independent Chinese and international NGOs that have to be accredited by the Chinese government (Klawitter, 2004, p. 11). According to official statistics, there are about 3500 environmental groups. About a third of these organizations are GONGOs, another third are student groups, and the last third is made up of other types of organizations. These groups generally do not engage in advocacy, but participate in dialogues and information sharing organized by the government. Opinions about the strength of the environmental organizations and their possible impact vary significantly between authors (Stalley & Yang, 2006, p. 338). Another vehicle for citizens to directly communicate environmental problems to the government are telephone hotlines for reporting grievances to improve government effectiveness (OECD, 2006a, p. 33; Stalley & Yang, 2006, p. 333).

3.3 Vietnam

In Vietnam, rapid economic development began with the launch of the government's doi moi (renovation) policy in 1986. Removing subsidies and price distortions, allowing increased private ownership and opening the country to the international market, it has steered the country from a centrally planned model to what the government refers to as a "socialist-oriented market economy" (Fahey, 1997; V. X. Han & Baumgarte, 2000). The results in delivering growth and poverty reduction have been unprecedented. Still one of the poorest countries in the world in the late 1980s, Vietnam has now assumed the status of a "middle-income country"⁵ (Rama, 2008; Vietnam Development Report, 2011). Simultane-

⁵ Based on the World Bank's definition, a lower middle income country is defined as a country with a GNI per capita of more than \$996, calculated based on the World Bank's Atlas method. Vietnam passed this mark in 2009 with a GNI per capita of \$1000. For more information, see <http://data.worldbank.org/>.

ously, poverty rates have been reduced from over 60 percent in 1993 to 13 percent in 2008.⁶

With the initiation of the *doi moi*, the government also began addressing environmental risks in policy discussions (Beresford & Fraser, 1992). A National Conservation Strategy was developed in 1985, but never officially adopted. This laid the basis for the National Plan for Environment and Sustainable Development presented in 1991. The plan outlined a strategy for the sustainable management of the country's natural resources to secure the basic needs of present and future generations. It formulated goals for the development of adequate environmental legislation and established the National Environment Protection Agency and institutions for environmental research. Shortly thereafter, the Ministry of Science, Technology and Environment (MOSTE) (since 2002 Ministry of Natural Resources and Environment (MONRE)) and its implementing agency, the Vietnamese Environment Agency (since 2008 Vietnam Environment Administration (VEA)), were created and in 1993 the National Law on Environmental Protection was passed.

However, despite the transition from a socialist command economy to a market-driven model, the new environmental policy framework remained dominated by a highly centralized logic of "command-and-control". The new law and subsequent regulations set a number of standards and rules for environmental protection, but largely failed to guarantee the enforcement of the legal framework (Mitchell, 2006). Moreover, throughout the 1990s a number of partly overlapping laws addressing environmental issues from a sectoral perspective were passed, including the Law on Forest Protection and Development (1991), the Law on Land (1993), the Mineral Law (1996), and the Law on Water Resources (1999). A lack of coherence between these different legislative measures has further hampered effective implementation, a weakness acknowledged by the government (Communist Party of Vietnam, 1998). To tackle some of these inconsistencies, the Law of Environmental Protection was revised in 2005. Though failing to fully eliminate inconsistencies and overlaps with sectoral legislation, it has broadened the scope and the density of the legislative framework. It has also introduced a number of new policy instruments, such as a license system for producers of toxic waste, an expanded framework for environmental impact assessment and an environmental protection fund financed in part through levies imposed on the use of natural resources (Mehling, 2008).

A further challenge relates to the limited institutional capacity and the relatively weak position of the Vietnamese environment ministry vis-à-vis its sectoral counterparts. With the Law on Environmental Protection environmental units were created in all the line ministries (O'Rourke, 2004, pp. 47-48). However, rather than enhancing the coordination across

⁶ Based on a poverty line of \$1.25 (PPP) per day. See <http://data.worldbank.org>.

ministerial boundaries, overlapping mandates have frequently caused frictions between the environment ministry and the respective sector ministries (Molle, 2005; MoNRE, World Bank, & DANIDA, 2006; World Bank, MoNRE, & CIDA, 2004). Furthermore, implementation of policies depends on the cooperation between the VEA and local Departments of Natural Resources and Environment (DONRE). Although the DONRE are dependent on the VEA for technical support, they remain accountable to local People's Committees.⁷ Driven primarily by economic imperatives, the goals of the People's Committees are often at odds with national environmental policy objectives. The resulting lack of cooperation frequently aggravates important capacity constraints at the local level (World Bank, 2008).

Despite these implementation deficits, the government was able to make advances in individual policy areas. In particular in the forestry sector, the government policy was successful in reducing, if not eliminating, the negative impacts from related economic activities. While forest cover was reduced from 42 percent to 27 percent of the country's territory in the period from 1943 to 1990, this trend was reversed in the 1990s. In collaboration with the international donor community, the government implemented large-scale reforestation programs. Placing an important emphasis on the active involvement of local populations, the programs allocated forest land to households and provided financial incentives for reforestation (Poffenberger, 1998). Simultaneously, the productivity of agricultural production greatly increased, thus reducing the need for further expansion of agricultural lands. As a result, forest cover had climbed back to 38 percent by 2003 - albeit mostly in the form of forestry plantations, raising questions about the long-term sustainability of forest eco-systems (Meyfroidt & Lambin, 2008).

Despite these caveats, Vietnam's forestry policies have demonstrated how the empowerment of local stakeholders can contribute to the local implementation of national environmental policy targets. Beyond the forestry sector, the pro-active involvement of local stakeholders in environmental management remains fairly limited, however. Instead local populations have increasingly used the provisions of the Law of Environmental Protection and the Grassroots Democracy Decree issued in 1998 to advocate for more effective implementation of environmental legislation. The laws give local populations the formal right to participate in local environmental management and to file complaints when the State fails to enforce existing environmental standards (Ingle & Halimi, 2007). In several instances, local communities have successfully utilized these provisions to force the government to take action. O'Rourke (2004) has called this form of environmental governance "community-driven regulation". As in the Indian case, local communities assume an important role in ensuring that existing environmental legislation is enforced by the government. The

⁷ The People's Committees report directly to the Prime Minister's office.

model is facilitated by the fact that the government has tended to allow increasingly critical media reports on environmental issues.

Despite an increasing openness to critical voices in the field of environmental policy, the growing number of environmental NGOs often financed at least partly through international channels, still function primarily as technical advisors rather than environmental advocates. At the local level, corporatist organizations, like the women's or the farmer's association, frequently play a role in facilitating the implementation of local environmental policy initiatives. However, their role in effectively involving local communities and representing their interests is compromised by the continuing influence exerted by the government and the Communist Party over these organizations (O'Rourke, 2004). Outside these government-controlled organizations, active involvement of local stakeholders in policy development and implementation remains very limited (UNDP, 2006).

3.4 Indonesia

During the second half of the 20th century, Indonesia's wealth in natural resources, including minerals, oil and gas and its large forestry resources, provided the basis for development model based heavily on the exploitation of natural resources (Banerjee, 2002). While generating economic growth averaging approximately 7 percent from 1970 to 1997, the model also caused severe environmental degradation (Resosudarmo & Irhamnia, 2008). The most visible effect of this development has been the depletion of forestry resources. From 1985 to 1997, forestry resources were reduced by almost 30 percent or close to 7 million ha (Forest Watch Indonesia & Global Forest Watch, 2002). Furthermore, under the clientelist regime of President Soeharto (1967-1998), the profits derived from an increasingly unsustainable exploitation of the country's natural wealth were concentrated within the hands of a tightly controlled patronage network. In particular Soeharto's family and the country's military leadership were able to benefit from the successive privatization of the country's natural resources (Hamilton-Hart, 2001).

Despite high levels of corruption, the Soeharto era was accompanied by a process of economic modernization and industrial development, helping to reduce poverty from over 60 percent in the early 80s to an estimate 43 percent in 1996⁸. As a result, environmental pressures also increased in Indonesia's growing urban agglomerations. Especially on the densely populated islands of Java and Sumatra, the growth of industrial output and rapid urbanization coupled with inadequate waste management practices led to increasing environmental pressures (Resosudarmo & Napitupulu, 2004; Resosudarmo & Irhamnia, 2008; World Bank, 1994). Moreover, a growing population increased the demand for food prod-

⁸ Based on a poverty line of \$1.25 (PPP) per day. See <http://data.worldbank.org>.

ucts, so that significant amounts of forestry and coastal areas were converted for agricultural use.

First environmental policy measures were introduced in the wake of the first UN environmental conference in Stockholm in 1972. Growing international pressure led President Soeharto to create the State Ministry of Development Supervision and Environment⁹. He appointed his Minister of Communication and former economic policy adviser, Emil Salim, to head the new ministry. Remaining in the position for over 20 years, Salim developed into a strong advocate for more environmental protection, often defending positions that were critical of government policy decisions (Gordon, 1998). To strengthen environmental protection, he developed the Environmental Management Act, which was passed in 1982. Among other things, the law emphasized the role of non-governmental organizations in strengthening environmental management in Indonesia, an important pillar of Salim's strategy for improving environmental governance. Actively supported by the environment ministry and tolerated by Soeharto, this led to the rapid development of environmental NGOs in Indonesia (Nomura, 2007). The role of non-governmental organizations was further strengthened in a revision of the EMA in 1997, by introducing a provision for class action law suits (Kaligis, 2006; Syarif & Wibisana, 2009).

Another important measure introduced by Salim in 1989 was the requirement for firms to submit an environmental impact assessment for important investment projects. One of the most important roles of the ministry is the evaluation of these reports for projects with national relevance. In practice, however, it has not exercised strong oversight of the EIA process. Monitoring and review of the EIA reports and the mitigation measures they propose is rarely conducted (Resosudarmo & Irhamnia, 2008).

The collapse of the Soeharto regime in 1997 and the subsequent transition to a democratic political system fundamentally altered the framework for environmental governance. While the period immediately following the crisis was dominated by efforts to promote economic recovery and restore political stability, the focus thereafter has been on implementing a far reaching process of decentralization (see Green, 2005; Matsui, 2007). In many ways this has further exacerbated the challenge of effective environmental governance (International Development Law Organization, 2006; Klingshirn, 2009; World Bank, 2009). It has added further complexity to a legislative framework characterized by overlapping and oftentimes inconsistent environmental legislation, including general and sec-

⁹ The State Ministry for Development Supervision and Environment was first renamed the Ministry of Population and Environment in 1983 and then relabelled Ministry of Environment in 1993. In the following it will be referred to as the Ministry of the Environment or environment ministry.

tor-specific laws as well as regulations at the provincial and district level (Klingshirn, 2009; USAID, 2008; Wingqvist & Dahlberg, 2008; World Bank, 2009).

Increasing local autonomy has also further weakened the role of the environment ministry. Even before decentralization, its role remained largely confined to policy development and coordination with enforcement authority in the hands of line ministries. With the transfer of power to the provincial and district level, the authority of the environment ministry has been further diminished. In spite of protests from civil society, the Environmental Impact Control Agency (BAPEDAL), previously under the remit of the ministry, was eliminated in 2002 (Simanjuntak, 2002). With this, the Local Environmental Impact Control Agencies (BAPEDALDA) have been placed under the supervision of provincial authorities (USAID, 2008). Simultaneously, important implementation functions were shifted to agencies at the district level (International Development Law Organization, 2006). These provincial and district-level organizations, however, are not required to adhere to directives from the environment ministry (USAID, 2008; World Bank, 2009).

In acknowledgement of the deficits this has caused, the government passed a number of laws in 2007 and 2009 to strengthen local environmental management. The laws outline a framework for establishing local environmental institutions, clarify their functions and provide guidelines for their internal organizational structure. Moreover, they include a number of provisions that aim to strengthen and streamline environmental management procedures. Among other things, it creates a single environmental license, integrating a variety of existing environmental permits. This license will be complementary to the already existing environmental impact assessment statements (AMDAL), which have to be submitted for activities that are likely to have a significant effect on the environment (Spitz & Lubis, 2010). An important opportunity to promote stronger integration of environmental aspects in government policy may be the framework for conducting strategic environmental assessment incorporated in the 2009 law (Dusik & Xie, 2009).

The laws do not establish performance standards for local environmental management, however. Furthermore, local incentive structures and lack of capacity continue to prevent effective environmental management. Local governments have an interest to issue licenses for the exploitation of resources and stimulate economic activity that generates local tax revenue. Simultaneously, they lack the capacity to enforce environmental standards. This weak implementation environment is further exacerbated by high levels of local-level corruption (Klingshirn, 2009; World Bank, 2009). Finally, while many environmental problems transcend local jurisdictions, inter-agency collaboration remains weakly institutionalized. Although national law stipulates that environmental problems transcending district borders are subject to provincial authority, provincial governments typically take action only if they have been invited by district authorities (World Bank, 2009). Similarly, inter-agency coordination at the national level remains weak (USAID, 2008).

In light of its weak enforcement role, the Ministry of Environment has established a number of reputational programs to promote compliance by the private sector through self-reporting and voluntary commitments. Most notably, the MoE launched its pioneering Program for Pollution Control, Evaluation and Rating (PROPER) in 1995. Based on information provided by the participating firms, the program rates company performance using a simple, single-index rating system. The program has had some success in improving the performance of participating firms and has been expanded to include more than 600 companies in 2008/2009. Moreover, it has widened its scope over time, adding a number of additional indicators (Afsah & Ratunanda, 1999; Afsah & Vincent, 1997; Blackman, Afsah, & Ratunanda, 2004; Lee, 2010). Nonetheless, critics argue that these measures can only provide a weak substitute for effective enforcement of regulations. In fact, representatives of Indonesian environmental organizations, including the influential Wahana Lingkungan Hidup Indonesia (WALHI, or Friends of the Earth Indonesia), claim that PROPER has weakened regular enforcement of environmental compliance in participating companies (Lee, 2010).

Fiscal and tax policy have a primarily negative influence on the environment with heavy subsidies for electricity and fuel. In 2008, subsidies on fossil fuels represented 13 percent of total government expenditure (World Bank, 2009). Moreover, there is no comprehensive framework for establishing environmental levies and pollution charges. Some local governments, mostly in urban areas, have introduced fees for waste disposal and waste water treatment. However, no comprehensive data on rates and related revenues are available, so that no conclusive assessment of their impact can be made (World Bank, 2003). Funds for local environmental management remain heavily dependent on the budget provided by the national government and are generally considered inadequate. In low-income districts regular budget allocations may be supplemented through funding from a Special Allocation Fund (DAK) for environmental protection. The provision of funds via the DAK represents one of the strongest instruments of the central government to promote good environmental governance, as it controls how these funds can be used (USAID, 2008; World Bank, 2009).

3.5 Synthesis: Weak capacities remain a central challenge for effective environmental protection

The brief overview reveals that all four countries face serious challenges regarding the “traditional” agenda of environmental protection. All four countries have developed an overall framework for environmental legislation. With the earliest efforts beginning in India and Indonesia in the 1970’s, all countries had fairly comprehensive legislation in place covering different environmental issues by the turn of the century. However, environmental governance remains dominated by a “command and control” approach with only a limited role for fiscal and market-based instruments. User charges are typically too low to provide any real incentive to reduce emissions.

The effectiveness of command and control instruments, therefore, depends on their implementation and enforcement by the administration and the judicial system. However, administrative capacities to implement and enforce the existing rules remain inadequate. Environmental ministries are weak players and coordination with relevant sector ministries is rare. Local policy implementation is hampered by a lack of capacity and lack of coordination across the different levels of government, resulting from conflicting local incentives and the weak authority vested in national environment ministries. This challenge is particularly acute in the Indonesian context, where decentralization has transferred environmental management functions almost entirely to the highly autonomous district-level governments.

To varying degrees, non-state actors may partially compensate certain limitations of environmental administrations. India, due to its long-standing democratic tradition, has the strongest and most vocal environmental movement. Public interest litigation has given local communities and civil society organizations an important vehicle for pushing the government to take more effective action to protect the environment. In Indonesia, NGOs have also played a role in advocating for more effective environmental governance, but to a lesser extent than in India. In Vietnam and China, civil society remains weak overall, though increasingly the governments are trying to provide a role for the emerging environmental organizations. This remains within clearly defined parameters, however. In Vietnam, some instances of local activism have placed pressure on the government to enforce existing environmental policies.

4 New Directions in Environmental Governance: the Modern Agenda

After painting this rather bleak picture of capacities for environmental governance in the traditional domain of environmental protection, the following section presents some of the more recent initiatives, signaling a stronger commitment to building effective environmental governance. While many of these new initiatives tackle the challenge of climate change and promote the development of a low-carbon economy, they may also have broader implications for environmental governance, a point further developed below.

4.1 Climate Strategies Strengthen Environment Ministries and Promote Environmental Policy Integration

Climate policy represents an important focus for environmental policy development in recent years, driving important new initiatives to enhance environmental governance capacities. All four countries have initiated inter-ministerial strategies for tackling climate change with corresponding councils or steering committees. With participation by ministers and even heads of government, these processes have elevated climate policy integration to the highest level of government. In India, for instance, the Prime Minister's Council on Climate Change brings together high-level officials to develop and oversee "a coordinated

response to issues relating to climate change at the national level”¹⁰ (see also Janardhanan, 2010). Similarly, Vietnam’s National Target Program to Respond to Climate Change (NTP-RCC) is overseen by a steering committee chaired by the prime minister, and the Indonesian National Council on Climate Change (DNPI) is chaired by the President. In China, the government has created the National Leading Committee on Climate Change (NLCCC) (previously National Coordination Committee on Climate Change), chaired by Premier Wen Jiabao.

Critics may argue that this focus on climate policy may further distract policy makers from the host of traditional environmental issues that remain to be solved. However, it should be noted that these climate change strategies go beyond measures to reduce greenhouse gas emissions, covering a number of sector policies and placing an important emphasis on climate change adaptation. In other words, to varying degrees, climate change policy also reaches into the domains of traditional environmental policy.

In India this is the most visible, where the NAPCC is composed of eight national missions in the areas of solar energy, energy efficiency, sustainable habitat, water, the Himalayan eco-system, forestry, agriculture and knowledge for climate change (Prime Minister’s Council on Climate Change, 2008). Only the national missions on solar energy and energy efficiency fall clearly within the field of climate change mitigation. The other missions aim to integrate a broad set of environmental objectives in the respective policy fields. Similarly, Indonesia’s National Action Plan Addressing Climate Change (NAPACC) goes well beyond preparing for changes in weather patterns. For instance regarding water resources, the NAPACC aims at the “actualization of stable water utilization in efficient, effective and sustainable manners for the prosperity of the whole people” (State Ministry of Environment, 2007, p.61). On balance, China’s National Climate Change Programme and Vietnam’s NTP-RCC are more focused on reducing energy consumption and greenhouse gas emissions and expanding renewable energy sources. Nevertheless, both also include objectives in the areas of water resources management and waste management (MoNRE, 2008; National Development and Reform Commission, 2007). Vietnam’s National Climate Change Strategy, approved in 2011, has further added biodiversity protection and afforestation as key climate policy goals (Government of Vietnam, 2011).

Furthermore, climate policy has visibly strengthened the role of environment ministries in India, Vietnam and to a lesser degree in Indonesia. Again this trend is most notable in India. The ministry has been tasked not only with the coordination of the NAPCC but also with the development and oversight of state-level action plans on climate change. Observers have also pointed to the strong role of the ministry in shaping national climate policy

¹⁰ See <http://pmindia.nic.in/climatebody.htm>, accessed on April 20, 2011.

under the vocal leadership of Minister Jairam Ramesh who headed the ministry from 2009 to 2011 (Janardhanan, 2010; Kahn, 2011; Raman, 2010). Whether these advances in raising the profile of the ministry will continue under his successor remains to be seen. In Vietnam, the Minister of Environment and Natural Resources chairs the Executive Board for NTP-RCC implementation with the important role of coordinating the related policy dialogue with the donor community. Moreover, MONRE leads the National Climate Change Strategy. With this it assumes the role of Standing Office for Climate Change and has the mandate to “lead and coordinate with other sectors and localities to govern the implementation of the Strategy” (Government of Vietnam, 2011, p. 16). Even in Indonesia, where the environment ministry has the weakest overall mandate, it has assumed important coordination functions, such as the development of the Indonesian Climate Change Sectoral Roadmap (Government of Indonesia, 2009).

Only in China, despite the upgrade of the environment ministry in 2008, it does not have a coordinating role comparable to ministries in other countries. Following the traditional logic of Chinese governance, (environmental) policy integration remains the task of the powerful State Council and the National Development and Reform Commission.

4.2 Climate Policy and Strategies for Green Growth and Clean Technology Development Drive Innovation in Policy Instruments

Beyond the development of high-level strategies, climate change and the development of low-carbon technologies have also spearheaded the introduction of a number of innovative policy instruments. Again in India, this has been particularly visible. In the effort to increase investments in renewable energy sources, the government has recently launched the trading of so-called renewable energy certificates (RECs). The scheme builds on the Electricity Act passed in 2003, which stipulates that power distributors in India are obliged to progressively increase their procurement of power from renewable sources. To facilitate investments in areas that are most suitable for renewable energy production, distributors may now purchase RECs from producers around the country to meet their obligations (Ernst&Young, 2011; Soonee, Garg, & Prakash, 2010). Another trading scheme known as Perform, Achieve and Trade (PAT) has been launched in the context of the National Mission for Enhanced Energy Efficiency. Building on almost a decade of capacity building, the Bureau of Energy Efficiency has set Specific Energy Consumption (SEC) targets for a number of designated firms. If these firms exceed their targets, they are eligible for so-called Energy Savings Certificates (ESCerts) that can be sold to an underperforming firm (Dube, Awasthi, & Dhariwal, 2011; Ministry of Power, 2012; Roy, 2011).

As the government gains experience with these new policy instruments, these initiatives in the energy sector may also stimulate action in more traditional fields of environmental policy. Citing the introduction of the PAT scheme, the Minister of the Environment announced plans to adopt a trading scheme for air pollutants. To be piloted in the State of Tamil Nadu and Gujarat, the scheme would include a range of air pollutants including but

not limited to CO₂ (Gosh, 2010; Srinivasan, 2011; The Hindu Business Line, 2011; van den Bergh, Faber, Idenburg, & Oosterhuis, 2007). Similarly, in Vietnam the debate on climate change initiated an ecological tax reform, which has ultimately also addressed other environmental challenges. Under development since 2004, the government passed the Law on Environmental Protection Tax in November 2010. The law imposes taxes not only on coal and oil-based fuels but also on plastic bags, HCFC, pesticides and other chemical products (Willenbockel, 2010).

Also in China and Indonesia, a number of innovations in climate policy and clean technology promotion are visible, although spillovers to traditional environmental policy are less apparent. As a late starter in the field of climate policy, the Indonesian government is embarking on a program to adjust fiscal and tax incentives to promote reductions in CO₂. In a Green Paper published by the Ministry of Finance in 2009, it presents economic and fiscal strategies for climate change mitigation (Indonesian Ministry of Finance, 2009). It proposes the phase-out of fuel subsidies, as agreed at the G20 in Pittsburgh, followed by the introduction of a carbon tax/levy. According to announcements by the government, this will be introduced before the end of the current government's tenure in 2014 and subsequently increased by 5 percent per year until 2020 (Indonesian Ministry of Finance, 2009; Jotzo & Mazouz, 2009). Once adequate carbon accounting systems are in place, it wants to consider converting the tax into an emissions trading scheme. Due to its large forestry reserves, the international REDD-framework (Reducing Emissions from Deforestation and Degradation) is another central pillar of Indonesian climate change policy. In cooperation with civil society and the private sector, the Indonesian government has developed a REDD-Strategy and Readiness Plan as well as a long-term strategy for its forestry sector (2006-2025) and has implemented a number of important administrative reforms to create a more effective forest management framework.

In China, a major push has come in the area of energy efficiency and clean technology development. The latest, twelfth five-year plan for 2011-2015 includes an ambitious agenda for the promotion of non-fossil energy sources and the acceleration of green technology development (Lewis, 2011; Remais & Zhang, 2011). A key component is the promotion of seven so-called "strategic emerging industries", including new energy, energy conservation and environmental protection and clean energy vehicles (APCO, 2010).

To promote these strategic industries, the government has not only made major investments in technology development, it has also implemented a number of innovative policy instruments. Energy-efficient products are supported by new audit schemes and public procurement (German Ministry of Environment (BMU), 2009; K. Jacob, Kahlenborn, Bär, & Knopf, 2010), while renewable energy technologies are being supported with feed-in tariff schemes, guaranteed purchases and a host of other subsidies (Pew Charitable Trusts, 2010). Under its New Energy Vehicle Development Plan the government has introduced integrated promotion schemes in 25 cities, where it combines public procurement of electric

cars, public investments in recharging infrastructure and subsidies for private buyers of e-vehicles (Y. Liu, 2011; World Bank & PRTM, 2011).

Moreover, a broader change to the country's government procurement policies has enabled the Chinese government to focus its government purchasing power on fostering innovative, environmentally-friendly and energy-efficient products. The 2002 Law on Government Procurement authorizes the government to utilize the procurement of goods and services to foster secondary policy goals (besides the need being addressed). These goals include the promotion of products that are domestically produced, environmentally-friendly, innovative or energy-efficient (US-China Business Council, 2010). Based on this law, the State Council has been able to channel massive resources into the technology fields mentioned above (K. Jacob et al., 2010).

Finally, in November 2011, the government issued a White Paper on Climate Change Policies and Actions in which it announced a plan to gradually establish a carbon market (G. Han, Olsson, Hallding, & Lunsford, 2012, p. 12; Lewis, 2011). In early 2012, the NDRC formally announced the first seven pilot regions for an emissions trading scheme that is supposed to lay the foundations for a nation-wide carbon-trading scheme starting in 2015 (Ma, 2012; Reuters, 2011; J. Watts, 2011a). Additionally, there are plans to introduce a carbon tax, which have stirred an intense debate (Chen, 2009; Lin & Yang, 2012).

5 Conclusion

The analysis of capacities for environmental governance in the four countries reveals that there are differing levels of capacity. On the one hand, there is the traditional agenda of environmental protection. Despite the enactment of relevant environmental legislation in all countries, implementation and enforcement remains a serious challenge in this area. Furthermore, environmental actors within government are too weak to effectively promote the integration of environmental concerns into other policy domains or at the subnational level of decision-making. Civil society organizations are not able to compensate for these administrative weaknesses. The new agenda of environmental protection, on the other hand, has developed at a much greater pace in recent years. Such policy initiatives are often directly linked, if not driven by, the international agenda. Official responsibility for these initiatives remains largely with the heads of governments or in the hands of institutions for central economic planning. As a result, these initiatives enjoy a higher priority than the traditional agenda of environmental protection. Moreover, especially in China, these initiatives are clearly linked to the motivation to compete in the sphere of a rapidly growing international market for clean technologies.

Regardless of the specific drivers, these new policy initiatives signal an important shift in national priorities. The increasing importance placed on climate policy and the development of an eco-efficient economy is accompanied by the willingness to experiment with new policy tools and institutional mechanisms. The environmental policy arena in Asia has

long lagged behind the economic policy agenda in the use of market-based instruments and financial incentives. However, the schemes mentioned above are testimony to the fact that times are changing. Moreover, new institutional mechanisms for promoting policy integration are being created. National councils on climate change are bringing relevant sectoral ministries to the table, partly under the coordination of the respective ministries of the environment.

It remains to be seen to what extent environmental ministries will profit from this, and whether they will be able to further strengthen their leadership positions in these new initiatives. Tentative signs of positive spillovers into more traditional areas of environmental protection, especially in India and Vietnam, as well as recent reform in the wider environmental legislation in China may be seen as indications for this. On the other hand, climate policies may also develop as economic or industrial policies without taking into consideration the wider spectrum of the traditional environmental agenda.

An optimistic scenario may assume further spillover effects emerging from the capacity building in the realm of the new environmental agenda. The pace of ecological modernization may further accelerate, offering support to a broader agenda of environmental protection. In certain areas, these countries may even become pioneers, offering lessons to the rest of the world. To achieve substantial improvements, however, parallel institution building will have to continue, so that basic requirements for sound environmental governance can be put in place. If these continue to lag behind, efforts in the realm of climate change and clean technology development may remain isolated islands of excellence with few benefits for traditional environmental governance.

In the short term to medium term, a heterogeneous system of environmental governance is likely to evolve in these Asian countries. They will be both policy entrepreneurs and laggards, scrambling to establish the required institutional foundation for effective environmental governance. Which of the two scenarios depicted above is ultimately realized remains a matter of (political) choice. Capacity building for environmental governance may prioritize climate change and the emerging markets for clean technologies - or alternatively they may take into account the wider spectrum of environmental policies. This may be at the discretion of prime ministers and institutions for economic planning. Or capacity building could emphasize the strengthening of environmental ministries, providing them with additional competencies and political clout.

In the long run, however, it is unlikely that Asian societies will accept the widening gap between the modern and the traditional agenda of environmental protection. While clean technology development and efficiency measures may enable Asian countries to slow down environmental degradation in certain areas, this cannot fully compensate for weak capacities in the traditional realm of environmental governance. The continuation of economic growth at the expense of the environment is thus likely to generate societal pressure to improve environmental governance more broadly. In anticipation of this, it appears expe-

dient for both political leaders and international supporters to capitalize on the current momentum in the realm of climate policy and clean technology development to build more comprehensive capacities for environmental governance.

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