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Authoritarian environmentalism and China's response to climate change

Bruce Gilley*

Division of Political Science, Mark O. Hatfield School of Government, Portland State University, USA

Authoritarian environmentalism is a non-participatory approach to public policy-making and implementation in the face of severe environmental challenges. Using the case of China's climate change policy, the meaning, causes, and consequences of authoritarian environmentalism are explored. A key finding is that authoritarian environmentalism is more effective in producing policy outputs than outcomes. Theoretical and policy implications follow.

Keywords: authoritarian environmentalism; participatory environmentalism; democratic environmentalism; climate change; global warming; China; civil society; democracy

Introduction

'Authoritarian environmentalism' is an emerging theory of public policy-making in the face of severe environmental challenges. It has been discussed both as a *prescriptive* model of how countries *should* effectively respond to such challenges, and as a *descriptive* model of how they *are likely* to respond. Given its relative novelty, the concept remains unexplored, both theoretically and empirically.

My aim here is to consider a key case of authoritarian environmentalism: China's response to climate change. Through this case study, I provide a definition of the concept and an exploration of its causes and consequences, paying particular attention to its non-participatory nature. My aim is to provide a broad overview of authoritarian environmentalism as practised in China in order to stimulate further research and debate on alternative approaches to climate change policy processes.

*Email: gilleyb@pdx.edu

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Two models

A long literature deals with the comparative performance of democratic and authoritarian *political regimes* in responding to environmental challenges (Josephson 2004, Purdy 2010). In response to new concerns about severe environmental challenges such as climate change, there is a growing literature on alternative *public policy models*. One of the most visible models is what I will call 'authoritarian environmentalism'.

The latent concept of authoritarian environmentalism was articulated first by Heilbroner (1974, p. 38) who believed that 'an absence of inhibitions with respect to the exercise of power' and limits on the freedom of speech would be needed to control population growth. More recently, the concept was described by Beeson (2010) as having two dimensions. One is a 'decrease in individual liberty' that prevents individuals from engaging in unsustainable behaviour and compels them to obey more sustainable policies. The second is a policy process that is dominated by a relatively autonomous central state, affording little or no role for social actors or their representatives (Beeson 2010, pp. 276, 289, 281). Similarly, Shearman and Smith, who, like Beeson, look to East Asian authoritarianism as a model for authoritarian environmentalism, stress limits on individual freedoms as well as a policy process in the exclusive hands of an autonomous state. Like other advocates of authoritarian environmentalism (Wells 2007), they emphasise the importance of excluding business actors as well as other groups from participation, on the basis that they are most opposed to environmental action. They also pay particular attention to the role of scientists and technocrats in steering state policy. In their model, there is limited 'participation' by scientific and technocratic elites produced by a 'Real University' that instils 'correct, uncensored, unedited, and scientifically correct knowledge'. But their roles are managed by a wise and uncorrupt state elite, what they term 'ecoelites', in charge of formulating and implementing policy (Shearman and Smith 2007, pp. 125–126, 166, 141).

Further elaborations have been provided by empirical case studies. Sowers (2007), in her study of nature reserves in Egypt, emphasises the concentration of state authority in executive institutions, which facilitates a rapid formulation and implementation of policies. Doyle and Simpson (2006), meanwhile, show how authoritarian environmentalism in Iran involves the mobilisation of society to support state policies.

Thus authoritarian environmentalism can be provisionally defined as a public policy model that concentrates authority in a few executive agencies manned by capable and uncorrupt elites seeking to improve environmental outcomes. Public participation is limited to a narrow cadre of scientific and technocratic elites while others are expected to participate only in state-led mobilisation for the purposes of implementation. The policy outputs that result include a rapid and comprehensive response to the issue and usually some limits on individual freedoms.

By implication, then, we can define *democratic environmentalism* as a public policy model that spreads authority across several levels and agencies of

government, including representative legislatures, and that encourages direct public participation from a wide cross-section of society (Holden 2002, Humphrey 2007). Policy outputs may be piecemeal and subject to time lags, and do not generally include restrictions on basic social, civil, or political liberties.

Since public participation is at the heart of democratic environmentalism (and its absence at the heart of authoritarian environmentalism), it is important to specify its meaning. Participation involves two dimensions. One is the *stage* in the policy process where participation takes place, from the upstream stage (research and knowledge formation, problem identification, measurement and assessment, policy options identification and assessment) to the midstream stage (policy selection and formulation) to the downstream stage (policy implementation, leadership, monitoring, reporting, assessment, and revision) (Birkland 2005). The second dimension is the *level* of participation, from low levels (being targets of state propaganda, reporting policy violations, and attending informational meetings), to medium levels (policy activism and protest, informal consultations), to high levels (legally-binding deliberative forums, outright citizen autonomy, legislative sovereignty) (Arnstein 1969, Plummer and Taylor 2004). Participants may include individual citizens, civil society, the media, issue experts, business leaders and corporations, elected representatives, and social spaces like internet sites and schools (Baum 2004, p. 1840).

In practice, all environmental policy models are mixtures of democratic and authoritarian features. Democratic regimes, for instance, usually delegate substantive powers of secondary legislation and regulatory enforcement to bureaucratic agencies that are relatively insulated from participatory pressures. Authoritarian regimes, meanwhile, may have significant informal participation by social elites and may experience dispersed decision-making as a result of the dynamics of factional politics. Nonetheless, as ideal-types, democratic and authoritarian environmentalism are useful in order to compare policy processes in different countries.

Description

China accounted for 25% of global carbon dioxide (CO_2) emissions in 2009, up from just 11% in 1990, making it the world's leading source of greenhouse gas emissions (which are about 80% CO_2 in China as elsewhere). By 2030, it will account for about half of global CO_2 emissions. China (along with India) is also a country where the absolute impacts of climate change will be greatest: melting Tibetan glaciers, sinking Shanghai, inundating Hong Kong, devastating south coast typhoons, an expected 5–10% decline in agricultural production, and a rapid loss of biodiversity (Lai 2009).

Consistent with authoritarian environmentalism, the political response to climate change in China has been centred on the top-down, regulatory powers of the central state. A Climate Change Leadership Group was established

within the then-State Council's Environmental Protection Commission in 1990. In 1998, a multi-agency National Coordination Committee on Climate Change was established and upgraded in 2007 into a 20-ministry National Leading Group to Address Climate Change (NLGACC) (*guojia yingdui qihou bianhua lingdao xiaozu*). The group is headed by the premier and headquartered in the ministerial-level National Development and Reform Commission's (NDRC) Department of Climate Change. The only outside participation comes from a scientific advisory committee, although most of its members are from government-funded or owned research institutes, especially the Energy Research Institute of the NDRC.

The policy outputs in China have been rapid and comprehensive since the submission to the leadership of a national energy strategy in 2003 (Chen 2003). The report was taken up by the top leadership in 2004, leading to the promulgation of a National Climate Change Program in 2007 (National Development and Reform Commission 2007). A Renewable Energy Law was completed in 2004 after fewer than nine months of drafting (Tian 2004) and then passed into law with no amendments by the unelected national legislature in 2005. In 2009, Beijing announced a national target of reducing CO_2 emissions per unit of gross domestic product (GDP) by 40–45% by 2020 compared with 2005 levels. The 40–45% target resulted from studies conducted within the NDRC (Jiang *et al.* 2009) and the final decision was made by the ruling party's Politburo.[1]

Following the announcement of the target, all agencies of government began issuing extensive implementing legislation, regulations, and circulars dealing with energy conservation, energy efficiency, and renewables as well as climate change mitigation. For instance, under a national 'energy savings and emissions reductions' (ESER) policy (*jieneng jianpai*), environmental authorities in coordination with the central bank and financial regulators began blacklisting polluting enterprises from receiving state bank loans or offering new shares (the so-called 'green credit' policy) (Wang and Chen 2010). Consideration is also being given to an 'environmental tax' on each company's pollution footprint and to a 'green export policy' to sanction polluters engaged in foreign trade (Aizawa and Yang 2010, p. 123). Power cuts to achieve energy reduction targets left 3500 households, as well as schools and hospitals, without indoor heat in one city in central China in early 2011 as temperatures plunged to -10°C (Yan 2011).

As to restrictions on liberties, a State Council circular of 2008 'required' that all drivers leave their cars at home at least one day a week; that elevators not be used to reach the first three floors of public buildings; and that public sector employees wear casual clothes to work in the summer (State Council 2008b). Local governments, meanwhile, are under pressure to impose their own rules 'so that people have no alternative but to adopt a low-carbon lifestyle' (He 2010b, p. 21). The state's population control policies have been cited as a model for future limits on individual choices related to climate change (Xinhua News Agency 2009).

While policy-setting is done at the national level by the NLGACC, implementation is left to each provincial government, which in turn delegates most decision-making to lower level governments. Provincial, prefectural, county, and city governments have set up their own climate change leading groups to respond to central demands for emissions intensity cuts as well as for climate change mitigation strategies (Qi *et al*. 2008, National Development and Reform Commission 2009). The role of local governments is magnified by the number and scale of 'clean development mechanism' projects under which local governments and corporations sell emissions reductions to foreign buyers (National Development and Reform Commission Department of Climate Change 2010, Shin 2010). China's climate change policy is thus centred on the regulatory and coercive powers of the central state and on the developmental and political incentives of local governments.

While there are many notable features of this model, the one that makes it decidedly authoritarian is its non-participatory nature. Both official policy frameworks as well as actual policy practices have emphasised either non-existent or 'downstream and low-level' public participation (*gonggong canyu* or *gongzhong canyu*). In the broadest sense, discussions about climate change by 'ecoelites' in China take place almost exclusively within technocratic and regulatory discourses that make little or no mention of society. Executive power, market incentives, and technological change are seen as the sole means of reducing emissions. Official policy statements and documents define public participation only in terms of citizens internalising state-produced knowledge and complying with state policies (State Council 2008a, China Weather Network 2009, National Development and Reform Commission 2009, pp. 41–42, National People's Congress Standing Committee 2009, Sec. 5, Wang 2009, p. 12). Citizen participation is limited to learning and obeying state policies (Lo 2010c). As one authoritative study argued: 'China's NGOs must abide by the political conditions of China and focus on cooperating with the government and companies and educating the public about climate change' (Lan *et al*. 2010, p. 102).

There has been some *activism* on climate change by legal scholars (Chen and Huo 2010), environmental scientists (Chang and Wu 2011), and state-funded researchers (Renmin University of China 2010, pp. 91, 96). A coalition representing 60 different non-governmental organisations (NGOs), the China Civil Climate Change Action Network (*zhongguo minjian qihou bianhua xingdong wangluo*), was formed in 2009 to press for greater participation (Friends of Nature 2009). However, this activism has for the most part been limited to 'rules-based activism' in which groups 'campaign for public participation rules to be upheld' (Johnson 2010, p. 432) or focused on downstream policy implementation (Watts 2010, Allison 2011). Attempts to shape public policy have been limited. The media has been used to float policy proposals or 'expose bad examples' of local government failures but not to challenge state policies (Ministry of Environmental Protection 2010, Tang 2010). The declarations of the China Business Alliance International Forum on

Climate Change (*zhongguo shangjie qihou bianhua guoji luntan*) faithfully repeat official policies.

More direct upstream participation has been very low level, usually in the form of propaganda meetings. In 2009, for example, Shaanxi province held a forum (*luntan*) on climate change attended by 'more than 100' representatives from government, research, and business. But no individual citizens or NGOs were represented, and the discussions were all led by central and provincial government officials (China Climate Change Infonet 2009). Examples of higher level upstream participation are rare. A group of scholars at People's University concluded in 2010: 'Where public participation does exist, it is often on inequitable terms or does not provide adequate opportunity for public inputs' (Renmin University of China 2010, p. 86).

The non-participatory nature of the domestic process is replicated in China's foreign policy (Liu 2008, p. 70). Of the 1997 NGOs accredited on environmental matters with the United Nations Economic and Social Council in mid-2011, just 12 were from China (compared with 223 from India) (UN Economic and Social Council 2011). Of these, at least half – such as the All-China Environment Federation and the China Family Planning Association – are well-known government-run bodies. Meanwhile, of the 10 Chinese groups accredited as civil society observers to the United Nations Framework Convention on Climate Change (UNFCCC) (compared with 34 from India and 1,300 in total), at least five – like the Association of Former Diplomats of China and the Chinese Academy of Agricultural Sciences – are government-affiliated groups (UNFCCC 2011).

The China case thus illustrates the basic tenets of environmental authoritarianism with two amendments. First, even with executive authority concentrated, implementation becomes highly dispersed in a large, decentralised system; in modern governance, much policy will be made at these downstream stages. Secondly, even when public participation is narrowly defined in official frameworks, there may be considerable mid-level activism within those narrow boundaries. Society does not become dormant even in an authoritarian model, but merely shifts its involvements towards acceptable areas.

Causes

Authoritarian environmentalism is often explained or advocated by reference to the characteristics of environmental issues. These include public ignorance, public irrationality, free-riding, the need for immediate action, the lack of availability heuristics to motivate social action, and multi-stakeholder veto players (Posner 2004, Stone 2009). Democratic models are often explained or advocated based on a rival set of claims about the characteristics of environmental issues. These include high uncertainty, value conflicts, expert informational deficits, and the need for policy legitimacy and social and state capacity (Baber and Bartlett 2005, Winslow 2005, Stirling 2008, Burgess and Clark 2009, Purdy 2010). Beyond issue characteristics, Beeson (2010, p. 281)

stresses traditions and structures of state domination that make authoritarian environmentalism more likely, while Shearman and Smith (2007, p. 125) focus on leadership choices and agency. Thus authoritarian environmentalism will be more likely: the more that the environmental threat is perceived by relevant actors to have authoritarian issue characteristics; the stronger are existing structures of state domination of policy-making; and the more that political elites are united about the need to act and are able to provide effective leadership. Moreover, one might hypothesise that in a democratic regime, where structures of state domination are weakest, adoption of the authoritarian model will depend largely on leadership and issue perceptions, while in an authoritarian regime, structures of state domination may be sufficient.

The case of China clearly falls into the authoritarian regime category and thus any causal explanation should begin by examining existing structures of state domination. As a general statement, *all* public policy processes in China are non-participatory. However, it is in the environmental area, save climate change, where participatory processes have been the most advanced. The north-eastern city of Shenyang, for instance, issued a decree in 2005 that established a 'right' to public participation, and created an Environmental Consultation Committee on which there are public members and a group of environmental inspectors selected from the public (City of Shenyang 2005). In 2008, Shanxi province passed regulations that call for 'start-to-finish public participation' (*quancheng canyu*) in environmental policy-making (Province of Shanxi 2008). Public participation has been given its most elaborate institutional form through participatory impact assessments and public hearings on environmental issues (Zhong and Mol 2008, Du 2009, p. 145). More broadly, successive legal and regulatory decisions have legitimised, if not realised, public participation in environmental affairs (Gu 2008).

However, beyond legal and institutional innovations, participatory or democratic environmentalism in China has faced grave practical limits. Attempts to incorporate public participation into land use planning (Tang *et al.* 2008) or water management (Liu *et al.* 2010) have been stymied by the strong state tradition. Environmental NGOs are weak, disorganised, and embedded in the state (Ho and Edmonds 2008, Tang and Zhan 2008), while broader public participation is limited to cooperation with state authorities (Lei 2009, p. 165). In a study of the most common hyperlinks in China's environmental network, Sullivan and Lei find that only 39% are to social actors, while government (34%) and international (26%) actors account for the rest (Sullivan and Xie 2009, p. 431).

While structures of state domination are central, issue perceptions have reinforced authoritarian environmentalism on climate change in two ways. One is a deference to the state. In 2009, Horizon Research found that 74% of respondents believed that the government should play the leading role in responding to climate change, compared with 11% who cited NGOs, 7% individual citizens, and 5% corporations (He 2010a). Secondly, climate change is not a highly visible environmental issue. It was mentioned by only 34% of

respondents as one of the most pressing environmental issues in a 2009 Horizon Research survey, after air quality, waste collection, and water quality (He 2010a). Indeed, the government frequently cites low levels of public awareness of climate change to justify its dominant role (Gao 2005, Pan *et al.* 2009). As Chen and Huo (2010, p. 87) observe: 'Decision-makers have often used the excuse that environmental protection is a relatively complex and scientific matter to exclude public participation and replace it by bureaucratic and expert decision-making'. The often confrontational global politics of climate change, meanwhile, have buttressed social deference to the state by strengthening nationalist sentiment (Lo 2010c).

While structures of state domination and weak public opinion are critical to explaining authoritarian environmentalism, the fact that participation in environmental issues is normatively sanctioned and that activist groups have campaigned for it means that some aspect of agency must be included in any explanation. The critical moment in this case was a decision by 'ecoelites' in the early 2000s to reconceptualise climate change from an environmental issue, where participation was at least conceivable, to an energy and scientific-technical issue, where it became highly unlikely (Richerzhagen and Scholz 2008, Zang 2009). This was probably intended not to limit public participation but to domesticate the issue from the foreign policy community (Heggelund 2007). But the *result* was to re-emphasise the non-participatory prerogatives of elite management (now in the hands of energy elites rather than foreign policy elites). This process was symbolised by the loss of bureaucratic control by environmental authorities, which had managed the issue between 1989 and 1998, to developmental authorities, which took over under government reforms in 1998. This shift was institutionalised with the establishment of a multi-agency committee in 2003 that eventually became the NLGACC. After that, the non-participatory policy model came to dominate official discourse (Xu 2010). It is notable, for instance, that Shearson and Smith (2009) was translated and published in China by the prestigious cabinet-level Chinese Academy of Social Sciences within two years of its original appearance, whereas influential works on 'democratic environmentalism' remain unavailable in China.

Thus the China case is important in affirming the centrality of existing structures of state domination to the adoption of authoritarian environmentalism in an authoritarian regime. However, since structures of state domination vary in their degrees of non-participation, demobilising society also required a further conscious act to lodge the issue within an agency least vulnerable to participatory pressures. This was made easier by a public opinion that deferred to the state. Authoritarian environmentalism, in other words, was not automatic even in this most authoritarian of settings.

Consequences

Does authoritarian environmentalism work? Supporters of authoritarian environmentalism believe that the model produces optimal outcomes

compared to more participatory approaches (Friedman 2009). Ma (2010) describes the rise of 'authoritarian chic' as a result of China's ambitious plans. Opponents argue that either the alleged problems of democratic decision-making are less severe than is claimed or that the best remedy for those problems is to improve rather than abandon the democratic process (Baber and Bartlett 2005, 2009). Sowers (2007) finds that authoritarian environmentalism in Egypt's nature reserves caused poor outcomes because of the intra-state conflicts engendered by concentrated executive authority and because of the exclusion of key stakeholders. In the case of China, domestic critics argue that the authoritarian model is causing poor policy formulation (Friends of Nature 2007, p. 11), poor policy implementation (Chen and Huo 2010, p. 87), or both (Lo 2010b, Guan *et al*. 2011).

Following policy analysis models used elsewhere (Haug *et al*. 2010), policy can be divided into three parts: outputs, implementation, and outcomes.

The key policy output is the emissions intensity reduction policy (40–45% by 2020 compared to 2005) announced in 2009. Several economic studies conclude that absolute emissions in China *could* be controlled without reducing growth because of the country's low levels of energy efficiency and its high carbon energy mix (50% more CO_2 intensive than other newly-industrialising countries (NICs)) (Steckel *et al*. 2011). In other words, higher emissions and energy use in China are *not* required for continued economic growth (Zhang and Cheng 2009, Wang *et al*. 2010, Zhang 2010, Fan 2011). Thus, an optimal policy would have set an *absolute* emissions cap prior to 2030 to be achieved through energy efficiency and structural shifts away from energy-intensive industry and carbon-intensive energy. Even assuming *some* deadweight costs in terms of economic growth, any cost–benefit framework that took into account China's impact on global climate change would still have made an absolute emissions cap worthwhile. In the event, while policy outputs have been rapid and comprehensive, notes Lo (2010a, p. 5960), the 'ambition allows very little compromise of economic interest and is couched in managerial terms'.

A reconstruction of the decision to adopt the weaker emissions intensity approach based on interviews with government climate change researchers[2] and public policy documents (Chen 2003, Jiang *et al*. 2009) yields several insights. First, emissions were seen by the leadership largely as a matter of international diplomacy rather than environmental sustainability. To the extent that there was a domestic imperative, especially after the 'energy turn', it centred on reducing energy dependence, reducing environmental degradation, and avoiding the lock-in of inefficient technologies, while maintaining rapid growth and strategically investing in green technologies, a finding that reflects long-standing motivations in China's energy policy (Aden and Sinton 2006).

The fact that the NDRC rather than the Ministry of Environmental Protection was the lead agency in formulating climate change policy, especially after the release of a 1994 policy document that advocated only 'no regrets' policy measures (National Environmental Protection Agency and State Planning Commission 1994), resulted in a clear emphasis on growth and other

goals. The NDRC pushed for a target that it believed would be *relatively easy* to attain. In the years 2007 to 2009, when the policy was being formulated, for instance, both foreign (Levi 2009) and Chinese energy analysts (Cai *et al.* 2007) were predicting a 25–45% reduction in emissions intensity by 2020 under a 'reference case' scenario in which Beijing *continued* its existing energy efficiency and renewables policies in place since 1995 (Chandler and Wang 2009, p. 5, Levi 2009, Ni 2009, p. 72, Zhou *et al.* 2010). Since emissions intensity had declined by 57% between 1978 and 2005 (Stern and Jotzo 2010, p. 6, Figure 1), leaders believed that the intensity target could be easily achieved. The issue was framed in a manner that de-emphasised climate change and emphasised non-climate change goals.

In the event, local governments were forced to impose rolling blackouts and factory shutdowns in 2009 and 2010 in order to achieve their targets, measures that Premier Wen described as 'deceptions'. Achieving the 2020 target will require equal reductions in the 2011–2015 and 2016–2020 periods despite the difficulties of achieving the supposedly 'low-hanging fruit' reductions (such as in cement production) in the 2006 to 2010 period (see Figure 1). A Natural Resources Defense Council study argues that without additional measures (like a national carbon tax), China will, as China's climate change experts acknowledge in private,[3] fall short of its Copenhagen goal (Cohen-Tanugi 2010). Even if achieved through stricter implementation or more fundamental restructuring, those modest goals will be far from the optimal goals that *could* have been attained. As a Lawrence Berkeley report notes about the government's focus on the 1000 biggest industrial emitters: 'Due to rapid implementation, program targets were established without detailed assessments ... A more ambitious goal likely could have been set based on assessment of potential savings in industrial sub-sectors' (Price *et al.* 2011b, p. 2170).

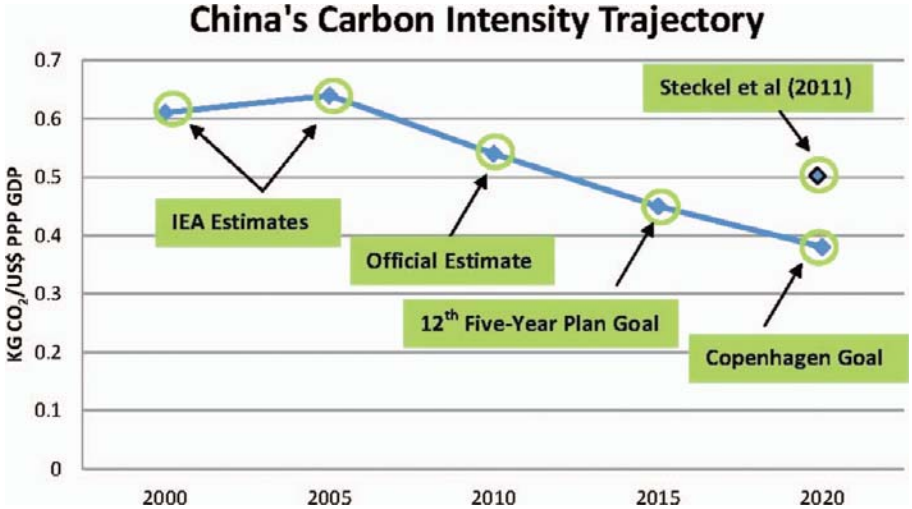

Figure 1. China's carbon intensity trajectory.

Would a feasible democratic process have led to better policy outputs? Li and Miao (2011) believe that, because of the tradition of state domination, China's authoritarian approach is the only one feasible. However, this ignores the legal and institutional foundations for participatory environmentalism sketched above. While public opinion as a whole remained relatively unconcerned about climate change, a broadening of the 'eco-elites' beyond state actors to include environmentally informed and motivated social elites could have led to a discussion of an absolute emissions target, as advocated by several environmental policy groups (Lo *et al*. 2010). As to the coherence and clarity of the policy outputs, Marks (2010, p. 979) notes that the enthusiasm for rapid-fire regulations and laws led to a system of 'vague or overly complex' policies that left much room for interpretation. More than 40 different regulations were issued between 2005 and 2008 to enforce energy intensity cuts (Zhou *et al*. 2010). Aizawa and Yang (2010, pp. 136–137) describe the tendency to 'layer one policy instrument over another' rather than creating a coherent regulatory framework. For instance, the 'green credit policy' under which banks are rewarded for lending to ESER projects and penalised for lending to poor ones, competed with rival policies that encouraged banks to lend to employment-intensive sectors to stimulate growth.

As to implementation and monitoring, the central state's decision to delegate tasks to provincial and local governments made sense within China's devolved unitary state. However, when combined with the complex layering of the regulatory framework, it exacerbated the well-known problems of local pushback against central directives (Edin 2003, Whiting 2004). Local governments view central policies 'as a drag on GDP growth and a weight around the neck of local development plans' according to one NDRC official in charge of the policy, citing internal meetings (Chandler and Wang 2009, p. 4, fn.3). While there are positive incentives for compliance operating through technology development, energy savings, pollution reduction, CDMs, and foreign assistance (Koehn 2008), these compete against far stronger perceptions that the policies will undermine growth and employment, something that the central government itself believes. As Qi and colleagues wrote: 'Local governments neither feel pressure to act on climate change from the public nor do they have to deal with international pressures' (Qi *et al*. 2008, pp. 393, 394).

One result is that local officials regularly fabricate their energy use reports.[4] Coal production (and consumption) statistics – two thirds of energy use – are notoriously under-reported (Tu 2007). Responding to the problems, the National Bureau of Statistics established a new Department of Energy Statistics in 2008 to provide its own survey-based evidence as part of a broader shift from administrative to measurement, reporting, and verification (MRV) enforcement. However, there is no means for third parties (like NGOs) to monitor the reported results.

Even where implementation was left in the hands of central authorities, compliance has been weak. For instance, the rushed passage of the Renewable Energy Law in 2005 led to resistance among power companies to buying (more

expensive) renewable energy. The law 'has not been strictly followed', according to NDRC officials (Xinhua News Agency 2010). In 2009, the law was amended mandating the companies to purchase all available renewables and putting enforcement power into the hands of the cabinet and national power regulator (rather than the NDRC which had conflicting interests). Further additional administrative measures were promulgated in 2010.

Thus the problems with policy outputs – their incoherence, their misalignment with local government incentives, and their being premised on a growth versus emissions assumption – have undermined policy implementation. The head of the country's scientific advisory body on climate change notes that 'China's administrative authority in charge of climate change remains weak and lacking capability' (Wang 2009, p. 11).

Again, one must ask whether a more democratic policy process would have yielded more coherent policies and thus better implementation and outcomes. While rapid-fire regulations would have been slowed by a more participatory processes, whether this would have led to a more coherent policy framework cannot be reasonably surmised. As to implementation, it is possible that greater policy legitimacy, especially from the point of view of local governments and social activists, would improve compliance. Wang (2010) cites the eruption of popular protests over experimental carbon dioxide capture and storage (CCS) sites in Shanxi, Liaoning, and Xinjiang as a result of the lack of consultation and poor compensation for the land requisitions. Only 43% of Chinese citizens surveyed in 2009 supported CCS even after being told that it was part of national government policy on climate change, while 13% opposed and 44% expressed ambivalence (Duan 2010, p. 5286).

The problem of monitoring emissions at the local level could also have been greatly enhanced with what Aden and Sinton (2006, p. 268) call 'community-based environmental monitoring', especially as Beijing moves towards a MRV model of implementation that requires a greater role for social actors and given that Beijing has accepted international monitoring of its emissions which will ultimately depend on partnerships with independent local monitors. For instance, the extremely low rate of implementation of national green building standards (found to be anywhere between 10% and 60% at the design stage and 8% to 38% at the construction stage) requires third-party gathering of information so that building owners, renters, prospective purchasers, civil society groups, lawyers, and investigative journalists can monitor actual building performance (Price *et al*. 2011a, pp. 2169–2170).

As to whether there is a possibility that a more democratic approach to climate change policy in China could have produced more optimal policies, the tentative, preliminary answer here is 'Yes'. While the feasibility of a fully participatory process is open to question, such doubts are endogenous to the problem itself. As Cao and Ward (2011) show, the low level of public concern that in part contributes to the sub-optimal policy outputs it a *consequence* of the demobilisation of social actors under authoritarian environmentalism. Overall, China's emissions trajectory has spiralled far above what could have

been achieved through more participatory processes. This is shown schematically in Figure 2.

While beyond the scope of this overview, a very similar analysis could be applied to China's afforestation policies, a key part of both mitigation and adjustment. Rapid-fire, high-profile afforestation policy outputs have been sub-optimal in conception, have faced severe implementation problems, and have not led to improved outcomes (Cao 2008, Wang and Cao 2011). The problem is the lack of substantive input from poor rural farmers in particular, and therefore it is imperative to, in the words of Cao *et al*. (2010, p. 441), 'find ways for rural citizens to achieve equal representation'.

To be sure, participation can fail if badly managed and the task of grafting it onto China's systematically inhospitable context would make the challenges greater. Yet China's great advantage is its relatively strong institutions that could, if directed, manage the participatory process so as to ensure complementarities of top-down and bottom-up mechanisms, a widely-noted feature of successful democratic environmentalism (Fraser *et al*. 2006, Johnson *et al*. 2006, Stringer *et al*. 2007). Thus China had a potential advantage over more democratic regimes with weak states, such as the Philippines or Thailand, as well as over more authoritarian regimes with weak states, such as Myanmar (Myint 2007).

The future

One thing that might prompt reform of the authoritarian model is a major climate-related incident that spurs social mobilisation. The admission by Premier Wen in 2011 that the Three Gorges Dam, a potent symbol of authoritarian policy-making, had created 'urgent social and environmental problems' is one example. Another would be a trickle-up effect from successful local experiments in participatory models that generate good results. In Gansu, local government, researchers and activists have piloted a participatory approach to climate change policy relating to forests (China Green Foundation *et al*. 2011). The city of Yangzhou's 'eco-city' (*shengtai shi*) planning model, meanwhile, which includes an absolute cap on greenhouse gas emissions, makes public participation a core principle (Yangzhou Environmental Protection Bureau 2008).

Norm diffusion and pressure from international organisations is a third factor that might shift the policy model. Since 2001, for instance, the Food and

	Energy mix (CO_2/energy)	Energy intensity (energy/GDP)	Wealth (GDP/capita)	Population	CO_2 (emissions)
Participatory counterfactual	↓↓	↓↓	↑	↔	↔
Authoritarian actual	↓	↓	↑	↔	↑↑

Figure 2. Factors in emissions growth.

Agriculture Organization of the United Nations (FAO) has funded a module on participatory environmental policy-making for local government officials training at the Central Agricultural Managerial Officials College (Li *et al.* 2001). US-based foundations have urged greater participation in CCS projects (Seligsohn *et al.* 2010, p. 12), which could account for as much as 18% of China's overall emissions reductions by 2020 (Wang and Watson 2009), and which Chinese government researchers admit suffer from problems of public resistance due to uncertain health effects (Li *et al.* 2011). Beijing is more likely to embrace participation in climate change if it feels it would directly serve the cause of policy effectiveness and institution-building (Roxburgh 2010) as well as international leadership (Karlsson *et al.* 2011).

There is already some evidence of creeping revisions to the authoritarian model. In March 2011, the NLGACC issued an unusual call for written submissions from the public for 'advice and suggestions' about a draft climate change law intended to bring coherence to the existing suite of laws and regulations. The appeal was made 'in order to realise the principles of democratic and open policy-making' (National Leading Group to Address Climate Change 2011). In October 2011, government climate change law drafters held a formal meeting with the China Civil Climate Change Action Network to solicit opinions (CCAN, 2011). Yet as one leading climate change policy researcher in China writes: 'Even if a specific climate change law is adopted, the many implementation and enforcement difficulties ... are likely to stand in the way of an effective response to climate change' (Deng 2011, p. 443).

Conclusion

The concept of authoritarian environmentalism provides a useful and important counterpoint to the rapidly expanding literature on democratic environmentalism. By elaborating this concept and establishing a preliminary understanding of its causes and consequences, we gain important insights into the choices and constraints facing states in their response to climate change.

Authoritarian environmentalism's merits are its ability to produce a rapid, centralised response to severe environmental threats, and to mobilise state and social actors. However, where state actors are fragmented, the aims of 'eco-elites' can easily be undermined at the implementation stage. Moreover, the exclusion of social actors and representatives creates a malign lock-in effect in which low social concern makes authoritarian approaches both more necessary and more difficult.

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Notes

1. Personal communication with climate change expert from Sun Yat-sen University, Guangzhou, China, 12 December 2010.
2. Personal communication with China delegate to global roundtable on climate change, 16 December 2010; personal communication with climate change expert from Lanzhou University Center for Western Environmental and Social Development, China, 19 December 2010; personal communication with climate change expert from Sun Yat-sen University, Guangzhou, China, 12 December 2010; personal communication with institute director at Chinese Academy of Social Sciences, 30 March 2011.
3. Personal communication with institute director at Chinese Academy of Social Sciences, 30 March 2011.
4. Personal communication with climate change expert from Lanzhou University Center for Western Environmental and Social Development, China, 19 December 2010.

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