

How Environmental Bureaucrats Influence Funding Legislation:

An Information Processing Perspective

Jingyuan Xu, Ph.D.,

School of International Relations and Public Affairs, Fudan University, Shanghai, China

xujingyuan@fudan.edu.cn

ORCID: <https://orcid.org/0000-0003-0352-9930>

Xiaohu Wang, Ph.D.,

Department of Public Policy, City University of Hong Kong, Kowloon, Hong Kong

xwang65@cityu.edu.hk

ORCID: <http://orcid.org/0000-0003-0912-3050>

Hanyu Xiao, Ph.D.,

Department of Asian and Policy Studies, The Education University of Hong Kong,

New Territories, Hong Kong

hxiao@eduhk.hk

ORCID: <https://orcid.org/0000-0003-0478-241X>

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Abstract

Government spending on the environment has long been explained as a reaction to ecological deterioration. Little is known about the role of political institutions and players in environmental funding decisions, which is surprising given the rapid institutionalization of environmental bureaucracies since the late 1970s. Grounded in information processing theories and employing data from Hong Kong, this research examines bureaucratic strategies for influencing environmental legislation. We find three salient bureaucratic choices in budget debates: (a) framing environmental issues broadly to include health and technological implications, (b) formulating rationales that emphasize (potential) performance of proposed projects, and (c) presenting narratives of the consequences of funding decisions. These strategies are part of an evolving political narrative that reflects a broader political debate on the environment environmental institutionalization, and the need for effective strategies to improve environmental funding in governments. Our findings contribute to understanding the bureaucratic politics of environmental funding legislation.

Keywords: Environmental spending, institutionalization, bureaucratic strategies, information processing, discourse analysis

Introduction

The non-exclusivity of many environmental services renders private investment difficult. Government fiscal support is critical; the lack of government spending and its consequences on environmental programmes are well documented (Hockings 2006, Lockwood 2010, United Nations 2018). This research explores how bureaucratic behaviours may influence environmental funding legislation. It adds to the literature on environmental politics of budgetary decision making, which largely presents funding decisions as simple reactions to ecological deterioration and has not explained the role of political stakeholders in shaping funding allocation decisions (Newmark and Witko 2007, Wang 2011). More specifically, we examine environmental bureaucrats' strategies in budget debates regarding environmental legislation. We are particularly interested in how information is presented and explained in developing these strategies.

Little is known in the literature about bureaucratic strategic choices and their influence on environmental legislation. Our research identifies some of those strategic choices and how they are adopted, thus contributing to our understanding of bureaucratic behaviour in environmental politics. Practically, the results of this research should help environmental bureaucrats identify effective strategies for communicating with legislators, who are mostly non-professionals, regarding often-complex environmental and financing issues.

Like many regions in the world, Hong Kong has experienced a severe ecological decline and a significant but fluctuating growth in environmental spending since the 1970s. The city has also seen a plethora of governmental institutions created in its process of democratization, including environmental institutions (such as the Environmental Bureau, with its growing role in lobbying support for environmental funding in the legislature). Increasing friction among legislators with different policy agendas has led to heated

legislative debates on environmental projects and to fluctuating environmental funding growth, providing rich documents and data for analysis. Given the exploratory nature of this case study, our intent here is not to give definitive answers regarding budgetary behaviours, but rather to provide beginning evidence to foster a research agenda for understanding bureaucratic politics of environmental funding legislation, which is largely unexamined but critically important for environmental politics and policymaking literatures.

Framework

This section employs the literature on government information processing (GIP) to understand how bureaucrats develop policy narratives in budget debates regarding environmental legislation. GIP has been used to explain bureaucratic strategy-making and policy agenda-setting as part of the punctuated equilibrium theory (PET) (Hegedich *et al.* 2015, Workman 2015, Wildavsky 1997, Jones and Baumgartner 2012, Rubin 2016).

Government Information Processing and the Role of the Bureaucrat

PET observes that significant policy change occurs more often than suggested by policy incrementalism and attempts to explain the causes of this pattern. One explanation relies on the understanding of how policy information is processed and used in decision-making. In a constitutional democracy, in which policy stakeholders with diverse interests and political bases compete for priority in agenda-setting, policy proposals for funding are a key manifestation of how various forms of information are presented and ultimately of how effective bureaucratic policy presentations are at getting proposals onto the policy agenda (Jones and Baumgartner 2005). Whereas the theory of GIP, particularly regarding disproportionate information processing, was developed to explain the punctuations in many policy domains, the literature has recently focused more on the behaviour of policy

stakeholders, particularly that of bureaucrats, in their efforts to allocate policy attention in agenda-setting and decision-making (e.g., Acs 2015, Workman 2015).

The role of bureaucrats in policymaking is highlighted in information prioritization and supply—the two fundamental elements of GIP (Workman *et al.* 2009). Indeed, in many societies, and particularly in democracies where the legislature makes decisions based on information supplied from seemingly unlimited sources, bureaucrats normally serve as crucial points of information processing who screen, detect, define, and process the oversupplied information on potential policy issues in preparation for budget debates, after which the legislature usually prioritizes and synthesizes the information and makes funding decisions (West and Raso 2012, Lam and Chan 2015, Workman 2015).

Recent studies have stressed this salient role of bureaucracy in decision-making, thus highlighting the importance of both bureaucracy's information processing and its strategies for obtaining sufficient attention from the legislature. Indeed, the bureaucracy has high expertise and autonomy in screening and processing information that is eventually transmitted to the legislature, and in so doing defines the parameters of choices for legislators (Workman *et al.* 2009, p. 86, Demaj 2017). In some cases, institutional arrangements are made in favour of a strong bureaucracy relative to the legislature, thus increasing the role of bureaucrats in affecting decision-making (Breunig and Koski 2018). Research has found that an increased role of bureaucrats can improve agenda-setting. For example, bureaucrats are more frequently required to attend meetings held by legislative committees in policy domains with pervasive policy uncertainty (Workman *et al.* 2017). Moreover, having additional administrative professionals in the bureaucracy can lead to a larger and more diverse policy agenda (Baekgaard *et al.* 2018). Due to the erosion of legislators' policy expertise, executive agencies also become increasingly important in defining problems and developing solutions (Boushey and McGrath 2016).

Bureaucratic Strategy-Making

The literature clearly indicates that in a constitutional arrangement in which an independent legislature reviews and approves the executive budget, bureaucrats use multiple strategies to win funding from legislators for their proposed budgets (Mikesell 2011). In that light, budgetary strategies—carefully choreographed efforts by governmental stakeholders to obtain a desired funding decision—can be seen as campaigns using information dissemination and processing to win funding in budget debates (Jones and Baumgartner 2005). For example, a bureaucratic agency can present information about past successes in programme implementation in an effort to demonstrate the potential effectiveness of future funding for the same or similar programmes.

In this study, bureaucratic budgetary strategies are defined as systematic efforts of the executive branch (i.e., the bureaucrat or administrator), including the central budget offices and individual administrative units, intended to influence legislative budgetary outcomes (Wildavsky 1997, Rubin 2016). Information supply and prioritization play essential roles in attaining legislative attention. Because issues are defined in public discourse in different ways, how information is used determines whether an issue will rise or fall in the legislative agenda. Bureaucrats create information ‘stimuli’ in budget proposals and reinforce them in their interactions with legislators during legislative debates (Ryu *et al.* 2007). Stimuli in line with legislators’ preferred values and goals may help them make decisions through their selective attention and processing of information.

The GIP literature highlights the insight that bureaucratic information-processing strategies exert perhaps more influence in defining the parameters of decision-making than in specific policy outcomes (Workman *et al.* 2009, p. 86). However, little is known about how the strategies work in the budgetary decision-making process. In this research, we examine

three interrelated strategic choices in that process.

First, because bureaucrats largely shape the quantity and types of information presented in the early stages of policy formulation, framing or defining policy issues through bureaucrats' information is crucial to budget debates and agenda-setting. Because the information and legislative attention on the issue are closely related (Juhola *et al.* 2011, Palmer 2015), when bureaucrats frame an issue or define a problem, they have normally already incorporated their preferences for solutions and actions into it (Scheufele 2000, Lakoff 2010). The information used to define or frame a new policy initiative or spending item determines whether legislators will be aware of new problems that require attention (Baekgaard *et al.* 2018). Also important is the notion that the ability to frame problems implies the capacity to steer policy changes (Workman *et al.* 2017, p. 140). Thus, this research first examines how bureaucrats frame issues in their environmental funding proposals for legislative debates.

Second, we examine how bureaucrats rationalize their funding requests. We rely on two lines of the literature to explore the reasoning behind bureaucratic arguments for funding. The budgetary politics literature emphasizes the political nature and openness of the public budgeting process and therefore supports the proposition that bureaucratic strategies highlighting the backing of political stakeholders (citizens, interest groups, other governments, etc.) are most effective in obtaining legislative funding (Wildavsky 1997, Rubin 2016). However, the performance-based budgeting literature prescribes the impact of a programme's past success (or failure) on funding decisions. Indeed, as argued in the performance-based budgeting literature, because resources are scarce, a government's overall policy success depends on the potential values created in achieving predetermined policy goals or objectives, and thus performance expectations should be used to justify legislative funding decisions (Wang 2000). It is important to note that those two strategies—seeking

stakeholder support and resorting to past performance—are not mutually exclusive in their use and impact. An agency is likely to use both strategies to maximize its chances of gaining legislative support. Nevertheless, these strategies differ in their value orientation (political vs. economic), their implementation focus (process vs. outcome), and their ability to alleviate uncertainties in funding decisions that are highly valued by legislators (Workman *et al.* 2017). Recent evidence links high-performing agencies with more stable spending patterns, suggesting the influence of performance on funding legislation (Flink 2017). This research explores what rationales bureaucrats use in their environmental funding requests and how they present those rationales in legislative debates.

The third strategy concerns the linguistic modes for presenting consequential narratives in debates, which may also influence legislative attention and decisions (Lybecker *et al.* 2013). The literature on the frame and narrative of the environmental discourse analysis indicates that how environmental information is linguistically framed and delivered to stakeholders affects their attitudes and behaviour (Hall 2013, Lybecker *et al.* 2013, Allan and Hadden 2017). In the case of a funding proposal for a recycling project, for example, bureaucrats can choose to emphasize, linguistically, a positive vision of green fields if funded, or a negative image of unregulated landfills if unfunded. Indeed, the vocabulary of environmental policy and politics has changed subtly but significantly in the past half-century—from stressing ‘environmental protection’ to building a ‘sustainable’ community, for example—thus reflecting the political reality of a vastly different and changing political context in the world (Allan and Hadden 2017). Of course, the language used in the budget process is always context-specific, depending on how effective bureaucrats perceive specific stories to be in influencing legislators regarding specific projects. In this research, we explore the patterns of bureaucrats’ tendencies to emphasize, as the consequences of funding decisions, either (a) the positive outcomes of environmental

achievements if a project is funded or (b) the doom and gloom of environmental negligence if a project is unfunded or underfunded. While a positive outcome may be attractive to legislators for the articulated benefits, a negative outcome specifies the costs and risks of unfunding or underfunding, and the responsibilities that legislators may bear for the decision. Table 1 summarizes these three strategies.

[Table 1 near here]

Environmental Policy Attributes in Developing Budgetary Strategies

Different policy domains (e.g., environmental policy vs. healthcare) should have different patterns of information processing due to variation in policy complexity, institutional capacity, and policy image (Princen 2013, Epp and Baumgartner 2017). The strategies that are developed should therefore consider the nature and characteristics of a policy domain. Here, we mainly focus on environmental policies, by examining specifically how information is presented and used in environmental legislation, with which bureaucrats and legislators interact in budget debates to make funding decisions. Normally in that process, at least in the United States and Hong Kong, central budgetary bureaucrats present the executive budget proposals, including the environmental agency's proposals for legislative debates. Prior to general floor debates, environmental proposals may be debated in legislative subcommittees that specialize in the environment. Environmental bureaucrats may be called upon to present the proposals, along with central budget officers, and may be asked to testify.

This subsection highlights several key environmental policy attributes that are normally considered in developing bureaucratic strategies for budget debates regarding environmental funding. These policy attributes form the cornerstone for bureaucrats in applying their professional information and knowledge (Princen 2013, Epp and Baumgartner 2017, Peterson 2018).

First, the benefits of many environmental projects, from wetlands protection to wildlife conservation to pollution control, are intangible or long-term, but their costs tend to be immediate and high. Moreover, at least in certain circumstances, environmental benefits are seen as a sacrifice or an added cost to economic growth (Wade-Benzoni 1999, Schaltegger and Synnestvedt 2002). All of these attributes cause higher uncertainty in environmental policies and make it more difficult for environmental bureaucrats to obtain sufficient attention from legislators (Workman *et al.* 2017).

Related to the above attributes is the non-exclusivity of some environmental projects, which makes it easier to ‘free-ride,’ leading to the tragedy of the commons in resource consumption (Breunig and Koski 2018). Coupling this issue with perceived (or real) environmental costs, environmental bureaucrats face the challenging task of articulating the net benefits of their funding requests in budget debates.

Second, although environmental and sustainability issues clearly are on many governments’ policy agendas, the institutionalization history of environmental units in most general-purpose governments is relatively short. Unlike many traditional governmental functions (such as defense, transportation, education, and social welfare), environmental services were only recently institutionalized, with the emergence of environmental issues and movements in the 1970s (Dunlap and Mertig 1995, Coglianese 2001). A short time in institutionalization could lead to the lack of institutional history and expertise, unsteady client/stakeholder bases, and limiting environmental agencies’ capacities to mobilize political support in budget debates (Breunig and Koski 2009, Robinson and Verdier 2013).

Third, environmental issues—pollution, nature conservation, climate change, and the like—are often technical in nature. An effective policy debate depends partly on stakeholders’ knowledge and understanding of environmental science and engineering, particularly in the fields of ecology, hydraulics, meteorology, and chemistry (Brand and Fischer 2013). Gaining

the knowledge essential for understanding environmental problems is a challenge for environmental bureaucrats seeking legislative support in budget debates.

Methods

The Case of Hong Kong

It is perhaps an exaggeration to say that the results of this study can be universally applied around the world; certainly, legislative budgetary processes differ across different political systems. Nevertheless, two qualities place Hong Kong in a global context and make it a relevant case study with global implications.

First, as a coastal city and adjacent to a vibrant economy in mainland China, Hong Kong has been dealing with myriad challenges similar to those of many other economies in balancing economic growth and ecological health. As part of a global trend since the 1970s, bureaucratic functions and responsibilities previously related to the environment have been reorganized and consolidated in governments (Schreurs 2003, Giugni and Grasso 2015). With the establishment of Hong Kong's Environmental Protection Department (EPD) in 1986 and its Environmental Bureau (ENB) in 2007, the government consolidated the executive functions for environmental protection that were previously scattered across various functional departments (public works, transportation, agriculture and fisheries, and parks and recreation etc.). This process of environmental institutionalization has allowed a cohesive assembly of powers that were once fragmented, and has substantially strengthened the executive capacity and bargaining power of environmental bureaucrats in the budgetary process, resulting in distinctive changes in environmental spending patterns in 1986 and 2007 (see Figure 1).

[Figure 1 near here]

The environmental funding trend and increasingly intensified legislative debate reflect

this institutionalization process and the challenge environmental bureaucrats face in a system with a strong tradition of prioritizing funding for economic growth. Indeed, environmental projects are often pitted against other types of spending projects (many economic development projects), competing for limited funds; they are often stalled in the legislature and subjected to prolonged legislative debates, generating a relatively large amount of data on the behavioural patterns of environmental bureaus and legislative responses for empirical observation and analysis.

Second, the budgetary system in Hong Kong resembles those of most advanced economies, in that the roles of various stakeholder institutions are self-serving and are becoming increasingly interactive (Cheung 2006, Fong 2015). Like other advanced economies, Hong Kong has a political system that allows various political interests to be represented in an elected legislature tasked with debating and approving bureaucratic budget proposals—a precondition for using bureaucratic strategies to influence legislative decision-making. With a legislature in Hong Kong that is largely divided on spending philosophy and priorities (e.g., the pan-democrats supporting social programmes vs. the pro-establishmentarians supporting large economic infrastructures), bureaucrats are known to implement various strategies when facing increasing legislative hurdles such as filibusters (Fong 2014, SCMP 2017).

Despite these advantages, our research addresses only one unique political context, that of Hong Kong, and our findings will need validation from other contexts. Nevertheless, this is an exploratory study, and our intent is to foster a research agenda. Rather than providing definite answers, we aim to produce evidence for a research area largely unexamined but critically important for environmental politics and policymaking.

Data

This study performs a content analysis on 19 non-recurrent environmental spending projects. Non-recurrent spending is ‘expenditure on items of a one-off nature and costing more than HK\$150,000 each but not involving the acquisition or construction of a physical asset’ (Hong Kong Estimates 2017, p. 7). Non-recurrent projects have unique advantages for our research. Unlike routine operating expenses, whose bills are bundled together, non-recurrent projects in Hong Kong have a separate resource allocation procedure that allows the examination of bureaucratic and legislative actions in these projects. Also, unlike capital spending projects, which often involve multiple agencies and in many cases are not defined as ‘environmental’ per se, non-recurrent projects are largely distinctive in their environmental purposes and are funded by the EPD, and thus are proposed and defended by the EPD in budget debates.

We examined bureaucratic budgetary proposals, legislative panel and subcommittee reports, project papers, legislative debate meeting minutes, and legislative records from the Panel on Environmental Affairs of the Legislative Council (Legislative Council 2017). We identified and coded bureaucratic strategies and legislative responses. We collected 96 documents in total dating from 1999 to 2014 for a time-series database. 1999 was the year that started documenting extensive legislative debates on the environment in Hong Kong. Data for other economic, socio-political, and demographic contextual variables were obtained from the Hong Kong Census and Statistics Department (Census and Statistics Department 2017), Hong Kong Public Library, and other sources.

Strategy Clarification and Analysis

We extracted and coded strategic statements from environmental bureaucrats’ budget requests and budget debates (legislative review), classifying the bureaucratic strategies, shown in Table 1, as (a) framing the issue, (b) formulating a rationale, and (c) presenting a consequential narrative. For framing the issue, we examined how an environmental issue was

raised, and more particularly whether it was a single- or multiple-front issue. For formulating the rationale, we studied how the rationale of a budget proposal was presented and argued, mainly through highlighting stakeholders' support ('the proposal is supported by stakeholders') or performance justification ('a similar project was a success in the past'). Finally, in examining the linguistic tones of the narratives in budget documents that the EPD used to present its arguments, we observed an increasing use of strategies stressing the negative consequences of unfunding. With this, our coding of the strategies distinguished between the positive outcomes of funding and the negative consequences of unfunding. The coding scheme was applied to all statements in project proposals and replies; once a statement was found to be related to a strategy listed in the coding scheme, we counted '1' as the frequency of occurrence for this strategy. This coding allowed us to calculate the frequency of each budgetary strategy studied during the study period, and the percentage of the occurrences for a strategy was calculated to represent its prevalence. The analysis followed an inductive category development of the contents (Mayring 2014), which facilitated the categorization and calculation of the data.

Findings and Implications

This section presents the findings on environmental bureaucrats' strategies in budget debates, and the policy implications of these findings for developing strategies in these debates. Though such discussion may be seen as practical lessons ('tips') for environmental agencies to improve funding chances, our main intent here is to objectively deliberate on the trends and institutional circumstances of the strategies based on the findings and the literature.

Framing the Issue

First, we found that, in framing the issues for funding requests, the environmental agencies

increasingly went beyond the narrow definition of the environment to include health and technological themes of the requests. Table 2 shows how funding proposals were framed within budget requests. The theme of a budget request was defined as part of a substantial discussion and was identified through analysing the wording and expressions of documents. In 1999, for example, both of the two non-recurrent spending requests had an environmental theme (air pollution control in both cases). Most funding requests before 2010 were environmental in theme, and only three of the 55 cases before 2010 (5.5 percent) discussed health substantially in their funding requests. However, after 2010, 28 of the 139 analysed proposals (20 percent) discussed the improvement of either health or technology, along with the environment, as a core argument. Framing an environmental issue broadly and diversely could help improve funding chances in the budget process by attracting attention and garnering support from legislators with diverse backgrounds.

[Table 2 near here]

A case in point here concerns a request in 2013 to fund the retirement of pre-Euro IV diesel commercial vehicles (DCVs). In the proposal, the problem of vehicle emissions was presented as both a pollution concern and a major health threat to citizens, in that DCVs *‘accounted for 90 percent of respirable suspended particulates (RSP) and 50 percent of nitrogen oxides (NOx) emissions from all vehicles and posed a direct health threat to the public’* (EPD 2013, p. 1). Similarly, a funding request in 2010 for the Pilot Green Transport Fund was framed as an environmental initiative targeting the technological improvement and economic competitiveness of the transport sector, *‘to encourage the transport sector to test out green and low-carbon transport technology, and to introduce more innovative green technologies, and [to adopt] internationally innovative technologies’* (EPD 2010, p.1–2).

Environmental issues are often complex and require multidisciplinary solutions. Bureaucratic knowledge, expertise, and information on cross-field benefits should be

emphasized to gain attention for funding requests in a political arena with an oversupply of information. Notions of the environment that embrace broader and more diverse stakeholder interests can be more attractive than the traditionally-defined concept of the environment in the public budgeting process, in which, at least in many advanced economies, the concept ‘environment’ is understood to comprise only the services of ecological system protection and natural resource utilization (Wang 2011). Although that concept is useful for classifying spending items for service functions, it says little about the essence of the services sustaining a community and their critical impact on quality of life.

In a constitutional democracy, in which legislative representation of diverse constituency bases entails various interests competing for limited funding, environmental bureaucrats may see the advantage of framing funding requests on a broad stakeholder base. Issue diversification may reflect legislative composition in Hong Kong. A large number of legislators come from various professional fields (health, education, technology, environment, etc.) and businesses. Framing an environmental issue more broadly can help attract the attention of legislators with diverse professional backgrounds and interests. Improved communication between the agency and legislators may help bureaucrats gain legislators’ trust and support for funding requests.

Moreover, the richness of the debates can challenge traditional boundaries of overlapping and redundant bureaucratic jurisdictions, potentially leading to more cross-agency collaboration and a reduction of unnecessary competition over jurisdictional authority for better-coordinated efforts in providing environmental services. Highlighting the benefits of collaboration among agencies may improve funding chances in a world of oversupply of information and scarcity of policy attention. A broader and more diverse definition of the environment in budget debates could lead to the expansion of policy boundaries that would promote stakeholder alliances and coalitions in agenda-setting (True *et*

al. 1999). The resultant new policy image could attract new participants. The richness of debates that reflects socioeconomic benefits beyond the environment could result in more attention from legislators with different policy needs and, consequently, in greater chances of funding success.

Formulating the Rationale

The second key finding is that, in justifying the rationales for funding requests, the environmental agencies increasingly present the potential performance success of funding, rather than completely relying on arguing for stakeholder support. The literature on budgetary strategies has long emphasized the importance of stakeholder support in funding requests (Rubin 1997, Wildavsky 1997). However, with the proliferation of performance information for decision-making, bureaucrats are increasingly able to demonstrate the past or potential future success of their funding requests when seeking legislative approval (Wang 2000). This appears to be the case in Hong Kong. The environmental agency has adopted performance-based strategies by highlighting information on how efficiently and effectively their proposals improve the agency's performance. These strategies include, but are not limited to, emphasizing performance in terms of accomplishing successful pilot projects, producing benefits to civil society, and improving international competitiveness. In our content analysis, we classified strategies based on whether performance information was a main justification for a request. Figure 2 presents the proportions of performance-based strategies in budget requests overall for the study period 1999–2014. The results indicate that, despite variation across the period, performance-based reasoning largely dominated agency funding requests.

[Figure 2 near here]

The dominant use of performance information reflects the status of the Hong Kong

government as an early adopter of a performance-based budgeting format in the 1990s. The government's efforts later evolved to include more comprehensive performance-improvement initiatives, such as the Enhanced Productivity Program and the Principal Officials Accountability System, in the late 1990s and early 2000s, respectively. Performance information gauges the economic valuation of funding requests, so its use in developing funding request strategies is consistent with the tradition of the government justifying a funding request based on its contributions to the economic vitality of the community. Articulating performance benefits is a subtle but significant enrichment of the traditional bureaucratic strategy that stresses stakeholder support. The benefits of many environmental services are intangible, long-term, and non-exclusive, and thus are considered less salient than many non-environmental services that have a longer institutional history and well-established stakeholder groups. Given the zero-sum nature of the budget game and the scarcity of legislative attention and funding opportunities, there is a heightened need to articulate the performance and benefits of investment in environmental services. High-quality performance information could identify environmental needs, engender bureaucrats' confidence in communications with legislators, and consequently reinforce bureaucrats' credibility as experts and professionals in programme execution (Pellizzoni 2011). This strategy could help gain legislators' trust and mobilize their support.

Indeed, with the proliferation of performance reporting in government (Ho 2018, Martínez Guzmán 2018), the demonstration of programme effectiveness has become a necessity for budget requests. While support from stakeholders may change frequently, performance information could be seen as a better solution to establish environmental projects' credibility and obtain decision-makers' attention (Flink 2017). As major suppliers of environmental performance information, environmental agencies can take advantage of their authority as information providers and interpreters by highlighting the performance of

environmental funding requests, which in turn can help achieve preferred legislative funding outcomes and, perhaps more importantly, help build and sustain an environmental policy practice that consistently learns from its performance successes and failures.

Presenting a Consequential Narrative

Our third key finding is that, in arguing for a funding request, the environmental agencies increasingly emphasized the negative environmental impacts (if funding was not provided) in forming the narrative for budget debates. The agencies have gradually shifted toward using more negative expressions in a dialectic narrative form in their arguments for funding (see Figure 3). We coded the impact statements in budget requests from 1999 through 2014 and estimated the frequency of statements delineating positive and negative consequences. A statement was coded as positive for deliberating expected achievements if funding were approved, or negative for presenting dire consequences of non-funding. The results show a gradual but clear increase in negative statements from 1999 to 2007 and a converging trend to use both tactics.

[Figure 3 near here]

These ‘scare’ tactics took various forms. The most common was to stress the environmental crisis faced by the government, through, for example, highlighting the threats that would be caused by air pollution if failure to fund were linked to respiratory and lung diseases such as asthma, bronchitis, and emphysema: *‘Emissions from diesel vehicles are a major source of respirable suspended particulates and there is growing evidence linking lung cancer with exposure to diesel particulates’* (EPD 2002, p. 2).

The bureaucrats also presented the challenges and failures of past experiences to justify the urgency or need of their proposed projects. In this approach, the agencies often stressed gradual improvement of practices as part of a learning curve when dealing with

often-complex environmental issues and the need for continued funding of such practices. In a request for a new capital injection for a conservation fund, for example, the agency emphasized the existing adverse impacts of underfunding conservation efforts and the need to maintain a sufficient level of resources for those efforts (EPD 2006, p. 3).

Given environmental services' attributes of long-term benefits, and potentially disastrous outcomes if a situation is left unaddressed, a budget proposal that stresses the consequences of non-investment or underinvestment could awaken legislators' issue awareness and risk expectations, and in turn lead to their preferred funding decisions. The execution of this strategy requires sound scientific knowledge, specifying the consequences of non-funding or underfunding, signifying the need of professional expertise and the credentials of environmental bureaucrats (Pellizzoni 2011). An emphasis on the consequences of environmental impacts (particularly if funding is not provided) thus helps develop a convincing narrative in budget presentations. The framing literature has highlighted that policy actors tend to view issues as distant phenomena removed from their daily life and experience. In order to attract actors' attention and inspire action, information should be framed to reduce this psychological distance (Anspach and Draguljić 2019). While a positive narrative may be perceived as a public good for actors, a negative narrative heightens the costs and reduces psychological distance, therefore leading to action. The above key findings are highlighted in Table 3.

[Table 3 near here]

Discussion and Conclusion

Grounded in information processing and budgetary decision theories, this research presents findings from Hong Kong on the role of environmental bureaucrats and their strategies in budget debates on environmental legislation. The findings stress three facets of

environmental funding requests—issue framing, rationale articulation, and narrative presentation. Besides their practical contribution calling for a consideration of bureaucratic strategic choices in budget debates, the findings contribute to developing a theoretical framework for understanding the bureaucratic politics of environmental funding legislation. This framework has several key aspects.

First, the framework integrates political and institutional forces to understand environmental funding decisions, advancing the traditional environmental funding literature that attributes environmental funding largely to ecological pressures and ignores the role of institutional stakeholders (Wang 2011, Olewiler 2006, Wang and Berman 2014). With a comprehensive description of bureaucratic strategies in environmental legislation, we call for a research agenda that further examines the role of bureaucratic strategies, the impact of these strategies on environmental legislation, the interactive relations between various strategies, and how these strategies work interactively with other socio-political and institutional forces in the dynamics of the environmental funding and legislation processes. By pinpointing specific bureaucratic strategies in the GIP process, we hope to develop a more nuanced explanation of the environmental funding punctuation patterns observed in the policy agenda-setting literature (Xiao *et al.* 2019, Workman *et al.* 2009).

Second, the political and institutional nature of this framework can be understood as part of the global phenomenon of environmental institutionalization. The burgeoning of environmental institutions since the 1970s, starting in Western countries but spreading to international organizations and developing countries, has raised public awareness and spurred institutional feedback for policy needs. The benefits and consequences of environmental institutionalization, including specialized tasks and professionalized staff hired permanently, provide an institutional basis for continual allocation of financial, technical, and human resources.

However, the growth associated with environmental institutionalization, ranging from new personnel to new capital projects, unavoidably poses a challenge for a political structure that favours the status quo and prefers incremental change. Stakeholders in non-environmental public services and environmental services compete for limited resources. The changing strategic choices made by environmental bureaucrats can be seen as an evolving reaction to the challenges of competing interests and as a cause of continual improvement of bureaucratic capacity, including its ability in legislative budget debates. These choices were perhaps made with a conscious consideration of increasing public awareness of the effects of global ecological decline, of new scientific findings that link ecological decline to human health, and of the reform of budgetary systems, particularly the use of performance-based budgeting globally. The bureaucratic strategies discussed in this study are an important part of the government's overall effort to build environmental institutions to tackle environmental issues.

Third, framed within the context of how bureaucrats process the critical information to influence decision-making, this framework stresses the importance of framing and narratives in environmental debates (including budget debates). The environmental discourse analysis highlights the value of framing issues and presenting narratives in debates of often-contested contexts where the central concepts and tenets of environmental issues are often open to contrasting definitions and interpretations (Anspach and Draguljić 2019, Allan and Hadden 2017, Pellizzoni 2011). The complexity and comprehensiveness of these discourses require a better clarification and understanding of how environmental bureaucrats, key stakeholders in planning and providing environmental services in government, engage in and influence the discourses. This research on environmental budgetary legislation provides a significant theoretical point of reference for strategy-development and narrative-formulation in other political and institutional contexts, such as stakeholder engagement in environmental

planning or inter- or intra-agency collaboration on environmental issues.

For example, the effect of broadening benefits in framing environmental issues—a key finding of this study—can be observed and assessed in community-engagement exercises, which have become popular in sustainability planning (Wang *et al.* 2014, Wang *et al.* 2017). More generally, given that frames and narratives can be employed to affect the attitudes and behaviour of key stakeholders—a key finding of the environmental discourse analysis (Anspach and Draguljić 2019, Allan and Hadden 2017, Pellizzoni 2011), a research agenda can be developed to explore how to describe and, more importantly, develop bureaucratic capacity to influence environmental discourses in general and budgetary debates and outcomes specifically.

This study has several limitations. First, it is descriptive and exploratory in nature. We only examine trends in the use of bureaucratic strategies and environmental attributes that are associated with them. The impact of the bureaucratic strategies on legislative funding decisions is not our major concern, though we did perform preliminary analyses that show positive relationships between the use of performance-based budgeting and non-recurrent spending, and between stressing the consequences of noninvestment or underinvestment and non-recurrent spending size.

Second, our study was conducted in Hong Kong. Future research should verify the generalizability of our findings in global settings with various institutional arrangements and dynamics. Despite these limitations, this research shows the potency and intricacy of bureaucratic behaviours in environmental politics and offers strong reasons to further examine such behaviours.

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