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Taking a climate chance: A procedural critique of Vietnam's climate change strategy[1]

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Abstract: *This article asks through what processes and for which interests the emerging Vietnamese climate change strategy is being designed, and if, ultimately, it is likely or not to be effective in the face of the looming threat. Through a review of an emerging body of literature and field observations, the paper finds the strategy partial and problematic in several ways. Its technocratic process prevents a pluralist representation of interests, obfuscating and perpetuating sectorial ones, at the expense of a more transparent and democratic resource allocation. The strategy therefore reflects and reinforces existing power relations in both politics and production. It feeds into a business-as-usual complacency, protecting national and international interests vested in unchallenged continuity, even when considering post-carbon technological fixes, which largely serve to expand capital accumulation opportunities. The article concludes that the national climate change strategy provides an illusion of intervention and security, but largely fails to identify and mitigate the underlying causes of climate change, or to lay the ground for a robust mid- and long-term adaptation strategy that can cope with yet unknown levels of climatic and other structural changes.*

Keywords: *adaptation*, *climate change*, *political ecology*, *political economy*, *Vietnam*

Introduction

Many recent accounts on climate change in Vietnam open by stating that it will be among the most affected countries in coming decades, often citing a 2007 World Bank study on sea level rise and development (Dasgupta *et al*., 2007; see also World Bank, 2007; Dasgupta *et al*., 2009). Unfortunately, there is little doubt that this will indeed be the case. Vietnam's geography of long coastal areas and monsoon rains makes its land and people highly sensitive to elevations in sea levels and the intensification of weather extremes that climate change will bring. While the magnitude and speed of such trends remains unclear, there is sufficient certainty in the range of likely effects and mounting evidence of current impacts. Despite discredited contrarian claims (little of which are found in Vietnam), there remains no doubt on the severity of this upcoming crisis, the threats it presents for the world in general, and Vietnam in particular. Furthermore, regardless of the uncertainty and debates on future impacts, policies and programmes that are being designed and implemented now already have economic and political consequences that are starting to affect the lives of those that are yet to be impacted by climate change itself.

This impact of anticipatory measures already justifies, in and of itself, investigating the political economy of climate change strategies. This includes criticising honest, well-intended, but narrow analyses that remain mostly blind to the power relations that necessarily, if surreptitiously, shape climate change policy-making. It also calls for uncovering, with less leniency, those discourses and practices that use climate change to conceal opportunistic self-serving agendas while taking a chance with Vietnam's future.

Within that broad objective, this article asks through what processes and for which interests the current Vietnamese climate change strategy is being designed and if, ultimately, it offers or not a credible response to the looming threat of

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climate uncertainty. To answer that question, the research examines the actors and interests behind current day strategy-making processes, seeking to shed light from a procedural perspective on why and how the Vietnamese climate change discourse is constructed, policies adopted, and programmes implemented. This in turn informs whether or not the prevailing strategy actually responds to its professed objectives, or to narrower interests, and at what risk for the country's ability to face climatic change.

This paper therefore situates its analysis within political ecology: that is, a political economy of social–ecological interactions by which the various production and distributive implications of access to and use of resources (notably land and water), labour, and capital are central to the understanding of the discourses, strategies, and policies (as state-society relations) under study (see notably Blaikie and Brookfield, 1987: 17–18; Bryant and Bailey, 1997: 5–7; Lipietz, 2000; Bäckstrand and Lövbrand, 2007: 131–136; Paterson, 2007; Adams, 2009: 171–201). This is a perspective critical not only of so-called unsustainable excesses of development, but of developmental modernisation itself and of its influence in giving rise to prevailing climate change discourses in particular.

The first section of this paper examines the context, actors and strategies of the emerging Vietnamese climate change landscape. It then turns to a procedural critique of that strategy making, questioning its technocratic exclusiveness, the concealing of particularist interests, and the construction of predictions that serves short-term accumulation at the expense of decentralised, flexible responses that would likely offer better chances of long-term effective adaptation. The article draws from the large secondary literature on climate change and development, and the less voluminous but emerging material specific to Vietnam. It also proposes a review of the National Target Programme in Response to Climate Change (NTP-RCC), adopted in December 2008 (Government of Viet Nam, 2008), and of a few other key government policy documents. In addition, the research draws from primary qualitative data collected during fieldwork from May 2009 to June 2010. Two dozen open-ended interviews were then conducted with researchers and officials of various agencies and non-governmental organisations in Hanoi and Nam Đinh, while direct observation and informal conversations with local officials, farmers, and aquaculturists took place in the districts of Giao Thủy and the Xuân Thuỷ National Park area (Nam Định Province), at the Red River estuary, 120 km south-east of Hanoi.

The Vietnamese climate change landscape

The context

Vietnam's acute vulnerability to climatic change is seen as the combined result of three factors: high exposure to natural elements; high sensitivity of socioeconomic structures to such elements; and low capacity to adapt by protecting those structures or making them less sensitive.[2] The country's 3260 km of coastlines, vast deltas and flood plains, short and quickly discharging watersheds, and location on the path of Western Pacific typhoons and the Southeast Asian monsoon imply that many parts of the country are widely exposed to sea-level rise (SLR) and weather extremes. Even in the most optimistic of scenarios modelled by the Intergovernmental Panel on Climate Change (IPCC), Vietnam will likely suffer significantly from this synergetic combination of climate change biophysical impacts. The rising of the mean sea level will imply a significant loss of land, wetlands and marine ecosystems, including mangrove forests that protect coastlines. This will be caused by permanent or occasional saltwater flooding, but also from increased erosion, subsidence, and salinisation of surface water and aquifers. While the long-term impact of global warming on typhoons is still unclear, an increased severity and southward displacement, as witnessed in recent years, would have further severe implications on infrastructures and livelihoods not adapted to such extremes (Chaudhry and Ruysschaert, 2007: 3–6; Nguyen Huu Ninh *et al*., 2007: 2–3; Carew-Reid, 2008: 7; ICEM, 2009; Tran Thuc, 2009). Beyond coastal areas, the unpredictability of climate extremes will affect the entire country through changes in temperatures and rainfalls, likely resulting in more droughts, floods, flash floods and landslides. The loss of biodiversity will

degrade ecosystems and the services they render, while higher average temperatures are likely at the same time to facilitate the spread of pests and plant, animal and human pathogenic vectors.

All this will severely affect key livelihoods, notably from agriculture, aquaculture and forestry, as well as public health and infrastructure (Granich *et al*., 1993; Chaudhry and Ruysschaert, 2007: 5–6; MONRE, 2008b). For this reason, Vietnam is also vulnerable because of the high sensitivity of its socioeconomic structure to the above biophysical impacts. The country's economy, and agriculture in particular, is very much dependent on climate, with about three-quarters of the population living in low-lying fertile plains potentially affected by SLR and fluvial floods, such as the Red River and Mekong deltas, or mountainous areas exposed to flash floods and droughts (Nguyen Huu Ninh *et al*., 2007: 3; Carew-Reid, 2008: 6). The most important social consequences of climate change in Vietnam will likely be reduced food productivity and production, with the possible loss of food sovereignty for the country as a whole, and food security for many groups within it. Agriculture still produces about a quarter of Vietnam's GDP, being the main livelihood of 60% of its population (Carew-Reid, 2008: 6). Beside agriculture, the burden of disease will increase directly from climate-induced risks, and also from increased disruption and various forms of insecurity. Millions of people may be forced to migrate, abandoning within a few years areas lost to an encroaching sea and new hydro-meteorological patterns. This will involve the loss of assets in evacuated zones beyond agricultural and aquaculture areas: housing, industrial, commercial and public service facilities, energy generation and delivery networks, as well as transportation infrastructures, in addition to disrupting hosting localities (Granich *et al*., 1993; Carew-Reid, 2008: 6–7).

Finally, the severity of biophysical impacts for the Vietnamese society will depend not only on the magnitude of such impacts, but also on the adequacy and fairness of the preparedness strategy that Vietnam develops and implements in the coming years. On the one hand, the Vietnamese society has a long history of adaptive capacity to structural constraints (notably foreign occupation and wars) and natural disasters (Adger, 1999; Adger, 2000; Kelly and Adger, 2000). This could bode well for its ability to face emerging climatic threats, but the profound structural changes that have redefined the country's productive and social relations since the launch of *Đổi mới* in the 1980s may also have irremediably weakened that ability – for example, through path dependency of industrial agriculture and hydraulic infrastructure, or the loss of biodiversity, knowledge and skills, and social networks. On the other hand, Vietnam's vulnerability is also partly defined by its limited means of coping with the threat as it is relatively poor as a nation. In addition, poorer people within the country, especially poor women and youth, are often the most exposed and sensitive to climate change, involved, for example, in agricultural livelihoods on disaster-prone lands. They are also the less endowed and empowered to recover from disruptions and for shifting to alternative livelihoods (Adger, 1998: 5, 10–11; Chaudhry and Ruysschaert, 2007: 2; OXFAM International, 2008: 13). In short, Vietnam is vulnerable to climate change as it is exposed to natural elements, for being a society and an economy sensitive to that exposure, and for having limited, and possibly decreasing, means to adapt by mitigating impacts or reducing sensitivity.

While this has become well documented in recent years, many Vietnamese and international actors are now paying much attention to the issue of climate change. The Vietnamese scientific authorities themselves are ostensibly concerned by the threat, and have significantly invested in research and planning over the past few years. The Ministry of Agriculture and Rural Development (MARD) and some scholars were already involved in climate change research and planning in the late 1980s (see notably Granich *et al*., 1993). In 2008, MARD published an Action Plan Framework for Adaptation to Climate Change in the Agriculture and Rural Development Sector for 2008–2020 (MARD, 2008), raising numerous red flags with respect to agricultural production, food security and natural disasters. The Ministry of Natural Resources and Environment (MONRE), since its creation in 2002, with its Institute of Meteorology, Hydrology and Environment (IMHEN), and various other agencies,[3] have all also been very

active recently in research and policy planning. Along that path, Vietnamese authorities have been responsive to international initiatives to better understand and mitigate climatic issues. The country ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994, and the Kyoto Protocol in 2002.[4] In compliance with its reporting obligations under the UNFCCC, Vietnam also issued its Initial National Communication in December 2003, providing a baseline inventory of greenhouse gases (GHG) emissions, considerations of mitigation options in the fields of energy, forestry and agriculture, and an assessment of eventual adaptation measures (MONRE, 2003).

The climate policy centre-stage has now been taken by MONRE, which drafted the National Target Programme in Response to Climate Change (NTP-RCC) and had it approved by Prime Ministerial decree in December 2008 (Government of Viet Nam, 2008). It remains unclear, however, how much such a commitment extends beyond scientific circles and into the broader political apparatus. As late as March 2008, former Prime Minister Võ Văn Kiệt publicly complained through a Thanh Niên News editorial of the inertia and inattention of policymakers with respect to climate change (Võ Văn Kiệt, 2008). Later that year, the National Assembly seemed unable to quickly sanction the National Target Programme, which may have been an indication of its limited acceptance by government and Communist Party officials beyond the moderately influential MONRE and other agencies directly interested by climate change (Zink, 2009a: 11). Yet the fast-track adoption of the NTP-RCC by executive decree in early December 2008 was necessary for committed Danida funding of USD 40 million to be transferred to the Vietnamese government (see notably Ministry of Foreign Affairs of Denmark, 2008). Since then, the NTP-RCC has provided a basis to define policies and strategies, despite yet unclear commitment to its implementation by the rest of the state. The stakes of the NTP-RCC in resource commitment and policy prescriptions, notably with respect to mitigation policies, will eventually become significant as it, and the climate change global governance context, continue to evolve in the coming years. The power relations that shape much of the Vietnamese state, between major ministries, such as those of Planning and Investment (MPI), Industry and Trade (MOIT), and MARD, as well as between key cities and provinces, will necessarily impose their weight on the evolution of the NTP-RCC.

Along the process, civil society and academic organisations are also mobilising to address climate change adaptation and mitigation objectives,[5] while a significant role is being played by foreign organisations of the development sector. Bilateral and multilateral agencies, as well as international non-governmental organisations, are coordinating efforts and have pledged significant resources to a range of climate change related activities.

As a first attempt to map out those efforts, a listing has been compiled by the World Bank covering the past 15 years (2009). The sum of those figures is, however, not precise enough to rest an analysis upon. While several projects are listed, many more are missing, and data is still very partial or sometimes incorrect. Some entries, for example, state no funds at all, while others provide overall project amounts much larger than activities actually committed to Vietnam or to climate change. From this survey, it was estimated that by 2009, between 500 million and 1.5 billion USD would have been pledged to climate change activities in Vietnam, mostly in the form of concessional loans. Yet after deleting the obvious mistakes and anomalies, the relative weight of those figures is somewhat indicative of the areas of commitment prioritised by the various actors.

Figure 1 therefore presents the corrected percentages of funds allocated to various sectors by all organisations listed in the compilation, and suggests a few trends worth noting. First, as could be expected, foreign donors are mostly committed to mitigation activities. On the one hand, these are projects that will reduce the country's GHG emissions, which threaten such donors as well as Vietnam. On the other hand, and probably most importantly, these are also areas of significant investment and trade opportunities for companies in industrial countries dealing with transition and post-carbon technologies.[6] The largest slice of the pie regroups all primarily *mitigation* funds (54%), and is composed entirely of loans from the World Bank and the European Investment Bank,

destined mostly to renewable energy and conservation projects (for some details on those projects, see notably Tran Thi Minh Ha, 2009). Much less official development assistance goes to category *Impact and Adaptation*, with only 25% of the share, more than half of which is earmarked for disaster prevention rather than other structural adaptation (e.g. economic alternatives, long-term planning, etc.).

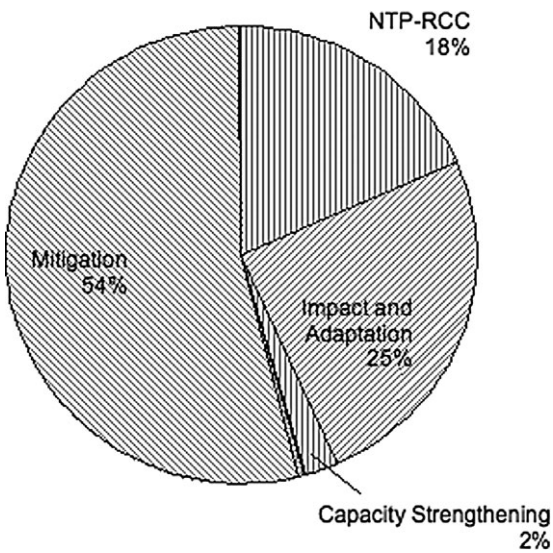

Figure 1. Climate change related funding from all organisations (including government agencies) since 1995, by categories
Source: Compiled from (World Bank, 2009).

As a second trend, we note that in contrast to many donors, the Government of Vietnam is mostly committed to adaptation, probably at least in part because committing public funds otherwise would be more difficult to justify. This is best illustrated by the remaining large slice of Figure 1, which consists of the approximately USD 110 million that the government would like to spend under the NTP-RCC planning from 2009 to 2015. At least half the programme, the Government hopes, is to be funded by international donors. Another 40% of its resources would come from presumably reassigned central and local budgets, and the remaining 10% from private sources raised through undefined incentives (Government of Viet Nam, 2008: 8). As this article goes to print, however, the strategy remains largely unfunded, with Denmark having pledged to support a third of it, along with mitigation activities by the Ministry of Industry and Trade (Ministry of Foreign Affairs of Denmark, 2008), and the Government having little leverage for reassigning most of the remainder from its own coffers.

Looking inside the NTP-RCC itself, through Figure 2, we start seeing the interests reflected by the Programme and the role of MONRE in writing it. About 58% of its resources go to

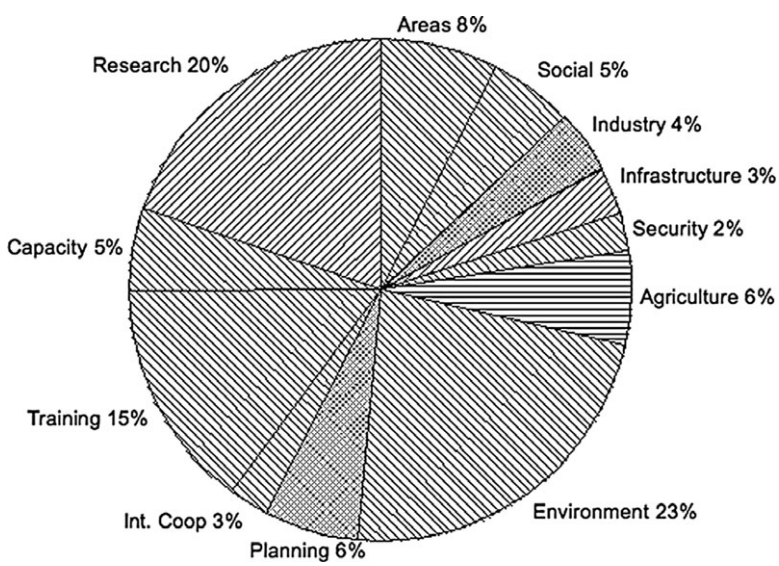

Figure 2. National Target Programme in Response to Climate Change allocation by categories December 2008
Source: (Government of Viet Nam, 2008).

environmental research and governance, as well as training and education activities, largely controlled by MONRE. In turn, 18% of the funds go to specific sectors, including agriculture, social affairs and industry, and only 8% is to be controlled by People's Committees at provincial and municipal levels. Finally, only about 2% explicitly goes to mitigation activities, in sharp contrast to the priority of donors discussed above.

In summary, the above allocation of resources makes clear that the NTP-RCC is mostly a research, planning and communication effort, vested in authorities responsible for the environment, and, to a lesser extent, for broader economic and social planning – notably through the secondary but nonetheless important role of MPI and line ministries. It should not be seen as a climate change response implementation programme, although it is meant to lay the foundations of such a future roll-out.

The Vietnamese response to the threatening biophysical changes sketched above also needs to be understood in the context of the intense structural transformation that the country has undergone over the past two decades. The launch of the *Đổi mới* (renovation) process in 1986 by the 6th Congress of the Communist Party of Vietnam (CPV) steered the country towards a so-called *socialist-oriented market economy* and somewhat liberalised political relations despite maintaining a monopolistic control of political institutions and the state. The socialist-oriented market economy is at the centre of the *Đổi mới* development strategy, for it claims to stimulate commodity production through market signals and trading while retaining state control of strategic levers, such as sectorial planning and an influential state ownership of key industries (see notably Vo Tri Thanh and Pham Hoang Ha, 2004; Painter, 2005: 271). In essence, this economy is an industrial organisation of production, with largely capitalist accumulation that registers its restructuring squarely within neoliberal orthodoxy, albeit repackaged since the late 1990s through the neo-institutionalist post-Washington Consensus. This orthodoxy certainly is mediated by the command of a developmentalist state, but not more than has been seen elsewhere in otherwise shamelessly capitalist East Asia (see notably Painter, 2005: 273–278; Masina, 2006; Trần Hải Hạc and Hồ Thị Hoà, 2009). The strategy has generated very high economic growth rates, reducing the number of Vietnamese households under the total poverty line from 75 to 16% between 1988 and 2006,[7] while decelerating population growth. In turn, the process has also firmly anchored the economy into the global trade régime, brought home the social and environmental limits of industrialisation, including differentiation, migration, chaotic urbanisation, as well as a number of grave or impending public health and pollution issues. Most importantly for the long-term, the process has nurtured interests now deeply vested in the reproduction of this model.

Politically, the Communist Party retains a firm grip over institutions of power, and tolerates contestation only within the system while open dissent for structural change is swiftly repressed. Yet political opening has occurred through some levels of media liberalisation, including more, if wavering, journalistic autonomy, easy access to foreign media since the early 1990s, and the creeping of a loosely controlled Internet since the late 1990s with now almost ubiquitous presence throughout the country (see notably Kerkvliet, 2001; Beresford, 2006: 209–210). While national education remains tightly in line with state objectives, an estimated 50 000 (roughly 4%) post-secondary students are now being educated abroad (Huong Le, 2009; Runckel, 2009), beyond echoes of Party lines and the gaze of the state. Political space has also been created through the emergence of a still diffident civil society that stays clear of political institutions but constitutes the basis of independent social networking (Kerkvliet, 2001; Trần Thị Thu Trang, 2009: 169).

This constrained but significant political opening has allowed some level of autonomous research, programming, and engagement with authorities on issues pertaining to economic and social development, including responses to climate change (see notably World Bank, 2009). However, and despite claims and presumably a sincere commitment from at least part of the CPV for socialist equity now and in the future, the political economy of *Đổi mới* has already eroded many of the incentives for socialist planning and accumulation. Many Party and state officials, particularly of the state-owned sector, are also among the incipient Vietnamese

bourgeoisie (Painter, 2005: 267–269; Masina, 2006: 154–155), enjoying the comfortable privileges of market capitalist relations, as well as rent-seeking in some cases, and are unlikely to ever want a return to some form of redistributive accumulation. The argument has been made that guarding against the particularist interests of the would-be capitalist nomenklatura has been a necessity for the CPV to maintain its legitimacy among a broad social base (see notably Masina, 2006: 155–156). Yet the resilience of that legitimacy, along the entrenchment of neoliberal reforms, has been more uncertain in the past few years (Thayer, 2009; Trần Thị Thu Trang, 2009: 174–175), and may no longer weigh as much on policy making. As accumulation now mostly follows and evolves along capitalist relations, the link between socialised redistribution and CPV authority becomes less clear, making the former expandable, and the latter rest on coercive power rather than legitimacy. In short, this is the context of narrow political reforms and accumulation-intensifying capitalist developmentalism that delimits the possibilities and constraints of the emerging stakes, objectives and processes of the Vietnamese climate change strategy, to which we now turn.

The Strategy

Despite some differences of priorities as noted above, there is a broad consensus among authorities and development organisations that Vietnam is a highly vulnerable victim of climate change (see notably UNDP, 2009). The Government, like that of most developing countries, makes the defendable claim that Vietnam is a casualty of global environmental changes beyond its deeds and control, largely the result of industrialisation by, and for the benefit of, rich countries. This victimisation of Vietnam, the responsibility of the global north for already committed climate change impacts, and the development potential yet unrealised but to which the Third World is aspiring and entitled (see notably Bäckstrand and Lövbrand, 2007: 133; Vanderheiden, 2008), strongly imprint on the Vietnamese analysis of climate change and the formulation of its response strategy. That argument, by Vietnam and most other developing countries, was reflected in the UNFCCC principle of 'common but differentiated responsibility' (United Nations, 1992: 1, 4, 5), and agreed upon almost universally. Vietnam then takes the reasonable position (and defendable interpretation of the Convention) that it should be compensated and assisted in mitigating and adapting to climate change while pursuing its legitimate quest for prosperity.

Assuming the vulnerability discussed above and the need for adaptation as a point of departure, the prime concern of Vietnamese policy-makers with respect to a climate change response explicitly is 'to ensure the country's sustainable development, seize opportunities to do so as a low-carbon economy, and join international efforts to mitigate climate change . . . ' (Government of Viet Nam, 2008: 3).[8] The first of these objectives, sustainable development, is a continuum of the long-standing narrative of *Đổi mới* for continued economic growth – indeed a political imperative in the eyes of the CPV for being an informal social contract whereby sustained growth is granted in exchange for the Party's political monopoly (Beresford, 2006: 210–211; Trần Hái Hạc and Hồ Thị Hoà, 2009). Furthermore, in the context and constraints of a changing climate, growth is seen not only as a developmental objective, but also as a necessity to increase adaptive capacity, funding the defence of socioeconomic structures and making them less sensitive to climate exposure.

This commitment to growth situates the prevailing actors in Vietnam within the parallel and (mostly) complementary discourses of *environmental (or green) governmentality* and *ecological modernisation* (Bäckstrand and Lövbrand, 2007: 126–131). The former asserts the top-down authority of instrumental rationality as science-based management, by the state and business, of individuals, society and nature (Luke, 1996: 6–13; Bäckstrand and Lövbrand, 2007: 126; Foster, 2008: 536–540). That authority is vested in the modernist project of growth, albeit repackaged as *sustainable development* over the last three decades. 'The science-driven and sovereignty-based UNFCCC and Kyoto process is in this discourse framed as an instrumental and technocratic project embedded in expert-oriented and publically inaccessible storylines that favor policy and research elites' (Bäckstrand and Lövbrand, 2007: 128). In turn,

ecological modernisation reacts to the neo-Malthusian *limits to growth* discourse of the 1970s (Meadows *et al*., 1974), and claims that liberal economic growth not only needs a healthy environment, but is also not inimical to that environment (Rutherford, 1998: 109–111). In fact, an ecologically modern economy can benefit and strengthen ecosystems whenever 'capitalism and industrialization can be made more environmentally friendly through green regulation, investment and trade' (Bäckstrand and Lövbrand, 2007: 129), along with technological and managerial innovations to reduce material and energy throughput, decoupling growth from resources, and reverse environmental degradation. In the Vietnamese climate change strategy, ecological modernisation therefore translates into claims of both *sustainable growth* (i.e. in which environmental crises are technocratically managed) and further *modernisation* opportunities (i.e. the development of new sites of accumulation) through a transition to a low-carbon economy.[9]

In both instances, however, the commitment of the Vietnamese state is made conditional on financing from industrialised countries. That condition was already made clear even before listing the NTP-RCC objectives, when the preamble of the document stated that:

> Following the UNFCCC principle of 'common but differentiated responsibility', Vietnam will implement effective measures to mitigate climate change once there is full financial support and technology transfer from developed countries and other international funding sources (Government of Viet Nam, 2008: 2).[10]

While the NTP-RCC version approved by the Prime Minister remains laconic on the details and justification of such positions, a previously circulated draft was more explicit:

> To meet the needs of socio-economic development, Vietnam will continue the exploitation and use of fossil fuels, which will result in increased GHG emissions. However, fully aware of the risks of climate change and of its role as a party not included in Annex I of the UNFCCC, Vietnam will develop and implement solutions to mitigate GHG emissions to the extent of available conditions and capabilities. [. . .] Vietnam will implement effective GHG mitigation measures if it receives adequate capital and technology transfer from developed countries and other international funding sources (MONRE, 2008a: 40).[11]

The text of the NTP-RCC therefore implies that mitigation will be ensured either through *no regrets* processes,[12] or, beyond the latter, largely be contingent upon foreign funding and technical assistance, allegedly justified under the UNFCCC principle of *common but differentiated responsibility*. By referring to the country's 'available conditions and capabilities', the strategy implicitly claims a right to development by which Vietnam should not have to reduce its emissions if this is to affect its rate of economic growth. This is a claim made by many industrialising countries, arguing the defendable point that rich countries have benefited from cheap fossil energy since the industrial revolution, are largely responsible for the excess stock of GHG in the atmosphere and oceans, and should therefore be the ones to quickly reduce emission towards global climate stabilisation while industrialising countries continue their carbon-emitting growth until their economies catchup (see notably Vanderheiden, 2008). The same logic implies that if developing countries are to more quickly reduce emissions, without foregoing their right to development, the industrialised world will have to provide funds and technology for a quicker transition at no cost to developing countries, notably through carbon financing, such as the Clean Development Mechanism.

This is not to say that Vietnamese authorities are unaware of, unconcerned by, or uncommitted to the need for mitigation through reduction of GHG emissions. Climate change analysis and planning in Vietnam have, since the early 1990s, explicitly discussed and put forward technical and policy solutions to mitigation, particularly in energy generation and conservation, forestry, and agriculture (see notably Granich *et al*., 1993; MONRE, 2008b: 99–108). However, and despite this evident concern among experts, the explicit commitment of the NTP-RCC to maintain high rates of economic growth, and the allocation of resources through its programmes as examined earlier in this article, reflect a political choice to commit national funds almost entirely to adaptation, not

mitigation. This remains consistent with the actual funding commitments of the NTP-RCC budget, whereby very few resources are slated for mitigation, and where foreign funds are expected to fill the gap. In Vietnam as in other developing countries, this is a reasonable stance in view of the priorities of industrialised countries that are funding, often through multilateral agencies, decarbonisation activities both for mitigation objectives and the 'business development' (that is, expanded accumulation) of Western low-carbon industries. From the Vietnamese point of view, there is no guarantee that a commitment of such magnitude would ever materialise, or be sustained, with respect to adaptation, not at least beyond the few business opportunities the latter may offer to some industries.

In short, the emerging Vietnamese climate change strategy fits squarely in, and is indeed subsumed by, the broader national project, policies, and bureaucratic apparatus of industrialisation and global integration of the past two decades. It prioritises growth above all, quenching the liberal thirst of the incipient bourgeoisie to expand accumulation opportunities and buying social stability from most other classes. To anchor that growth within sustainable development, the strategy proposes to technocratically manage the climate crisis by decarbonising the economy whenever this is either good business or when rich countries take responsibility to bear the costs, and by contemplating yet imprecise adaptation measures and technologies that ongoing research and modelling should soon allow to sharpen. This at least is the climate change response plan, on which the next section will offer a critique.

Procedural critique

I propose here to investigate the *processes* that have given rise to the prevailing Vietnamese climate change strategy. I argue that this process is opaque and politically loaded, despite claims to the contrary, taking place within technocratic and political inner circles, and producing both technically unsound results and social injustices. For lack of space, a substantive critique, discussing how the agenda setting of the climate change debate prevents addressing broader issues that relate to the industrial growth model adopted by Vietnam since *Đổi mới*, will be discussed in a separate article.

Depoliticised problem

The ideological nesting of the Vietnamese climate change strategy into both environmental governmentality and ecological modernisation produces a biophysical-centric analysis of first-level causality, focused on GHG concentration as the driving force of global warming and climate change. In Vietnam as elsewhere, this is a knowledge constructed upon, and a praxis focused on, the biophysical processes and impacts of climate change, rather than the social and political stakes and struggles that the former necessarily beget. It reifies the inevitable mechanisms by which biophysical systems react to higher concentrations, relegating human agency to the necessity of limiting GHG emissions. Concentrations hence become both the object of analysis and the main target of mitigative intervention, while the evolution of biophysical attributes becomes the focus of adaptation.

Of course this analysis is not false, and the relation between GHG concentration and climate change is not in doubt. It is incomplete, however, for that simplified causality between GHG and climate impact is only part of a continuum of relations with other components both upstream of emission and downstream of impacts. The link between emissions and climate change is clearly preceded, mediated and succeeded by socially determined processes of production, distribution and consumption. From a critical political ecology perspective, that link pertains not only to how humans depend on their natural environment (for resources and ecological services), but also on how they interact with that environment (resource management), and interact between them as a result of that environment (power in resource allocation).[13] This reiterates what Adger (1999: 250) flagged more than a decade ago (incidentally, also in the context of Vietnam) as the need to consider 'differentiated social vulnerability under different threats and under different economic and institutional circumstances; and the co-evolution of those economies, institutions and social orders with the climate system'.

The reification of a narrow causality therefore short-circuits the understanding of the multiple

ways through which human activities produce emissions and eventually lead to climate change with differentiated impacts for different groups, and as a result 'prioritizes technical and technological solutions, at the expense of understanding climate change as an integrated weave of the natural, the scientific and the social' (Zink, 2009b). This is best illustrated by the importance given to temperature rises, changes in rain patterns, storm surges, biodiversity and sea level elevations as direct (and implicitly the sole) causes of social disruptions, assessed through complex scenarios, and used as key policy determinants. Not surprisingly, the latter are overwhelmingly geared at 'climate-proofing' social–economic systems, mainstreaming climate change adaptation in development practices in an attempt to maintain course on growth (Brooks *et al*., 2009: 752).

This omission has significant analytical and strategic implications. It de-socialises and de-politicises the problem, situating it in a physically defined space of human–nature relationships, rather than in the more unsettling space of social relations, and their own shaping of nature–social interactions. This necessarily obfuscates the political nature of climate change processes and governance by muting discussions and minimising the role that vested interests play, behind and above biophysical processes, in identifying problems, setting agendas, driving debates and defining strategies. The prevailing analysis therefore not only blurs the exercise of power by dominant groups, but also ignores the interests, misunderstands the actual political dynamic and denies a voice in policy-making for the rest of society, portraying it 'as fragile and disempowered in the face of global climate change' (Adger, Benjaminsen, *et al.*, 2001: 701). In turn, the approach largely ignores the various production and distributive implications of access to and use of resources, labour and capital that necessarily mediate, and will continuously and dynamically be redefined, as the biophysical attributes of human habitats and natural resources are modified by the climate crisis.

Technocratic process

Discourses are shared meanings sustained by the production of knowledge, itself the result of the exercise of power. Once hegemonic among dominant groups, such shared meaning is at the core of policy-making, informing and justifying the strategy that policies embed (Adger, Benjaminsen, *et al*., 2001: 685). In the climate change domain as in others, discourses therefore reflect and enact power relations, enabling 'certain descriptions of reality' and 'empower[ing] certain actors while marginalising others' (Bäckstrand and Lövbrand, 2007: 125; see also Adger *et al*., 2001: 683–685; Foster, 2008: 538). As emphasised by Cass and Pettenger (2007: 236–237):

> . . . dominant discourses surrounding the politics of climate change play a critical role in privileging particular actors, problem definitions, and solutions in the policy process. While such a conclusion appears obvious and unremarkable, much of the scholarship on climate change does not take seriously the ways in which underlying discourses and norms dictate the framing of the problem and its potential solutions. Only in highlighting these discourses and norms is it possible to understand the construction of climate change as a problem and explain or interpret the evolution of the political response to it.

The biophysical focus that results from the ideological positioning of the Vietnamese climate change discourse confines related policy debates to a narrow domain of experts. This has meant that membership to circles that define climate change problems and solutions is filtered by both technocratic credentials and political legitimacy within the Vietnamese state and its supporting networks of authority (see notably Zink, 2009a). The circle of experts involved in climate change has to date largely been composed of bio- and geophysical scientists or related environmental and sectorial specialists from academia, research institutions, a few NGOs, as well as civil servants and politicians. This has also included experts from foreign organisations, which were given opportunities, for example, to comment through the NTP-RCC drafting process (see notably Climate Change Working Group, 2008).

The development of hydraulic infrastructures provides a telling example of the political economy of interests that feeds such a discourse of exclusion. The intensification of

hydraulic landscaping and management, surging in the Mekong delta after the launch of *Đổi mới*, has created new class interests and alliances between hydraulic technocrats and state, military or private construction companies, as well as re-emerging landowners, processors, traders, and a number of market-dependent farmers and aquaculturalists (Biggs *et al*., 2009: 214; Evers and Benedikter, 2009: 15–20). The interest of those groups is now firmly vested in the reproduction of hydraulic systems, both for the continued appropriation of resources that goes in its maintenance and expansion, and to support the model of production now in place (see also Käkönen and Hirsch, 2009). In such a political economy, an uncontested technocratic narrative of climate change provides an opportunity to mobilise important resources for the hydraulic system, both nationally and from foreign donors.

This situation is of course not unique to Vietnam, where technocratic processes are central to policy-making, with various degrees of influence from political actors on the margins. In the case of Vietnam, it has been argued that the bureaucracy does allow for multiple representation of interests, be they sectorial or geographic (Kerkvliet, 2001; Painter, 2005: 266–267; Masina, 2006: 143–156), and that 'everyday politics' has brought about major structural change in a bottom-up process (Kerkvliet, 2005; Trần Thị Thu Trang, 2009: 168–170). Within the circle privy to climate change policy, there has in fact been debates on the magnitude and pace of change, and indeed conflicts between government agencies over institutional settings and resource allocation – as could be expected from any bureaucracy.[14]

Nevertheless, constraining climate change analysis and policies to biophysical-centric debates has narrowed that process. The screening has not only prevented effective broader participation beyond nominal consultation, but has also necessarily resulted in top-down decision-making of climate change interventions. Such exclusion is legitimised by the scientific complexity of the subject and the presumed incapacity of outsiders to make significant contributions, constructing an authoritative narrative of rational, compelling, unavoidable and menacing truth (Zink, 2009a: 6; see also Forsyth, 2003: 11–17). That narrative demands an unquestioned and uncontested alignment of all actors behind the trustworthy leadership. This is reflected in a wartime semantics now frequent in both the global and Vietnamese climate change rhetoric (Hamblyn, 2009: 229; Zink, 2009a: 10). It also lays the ground for authoritarian decision-making if necessary, rested on the imperative of results if and when actors are not receptive to the technocratic discourse and compliant to its sanction. In so doing, it facilitates the dismissal of dissident analyses and of contestations of strategies.

Unsurprisingly, such a knowledge construction and policy process create new opportunities for dominant actors to reallocate resources in their favour. The few participants privy to that process necessarily provide interpretations of risks and prescription of measures that reflect their expertise and experience, but that are also often slanted for their institutional, and, in some cases, private, interests. Different groups stand to loose or benefit from various mitigation and adaptation interventions, and are necessarily considering those perceived interests when influencing, to the extent of their political power, the decision-making process that will set those interventions in motion. This is not to say that climate change policy is disconnected from climate and other natural sciences. The biophysical body of evidence offers scenarios, to which various risks and countering strategies are associated. But it is the assessment of such risks that is politically loaded by the interests of the analysts (see notably, Beck and Ritter, 1992): these are risks for whom, of what intensity and of what likelihood? What are then the costs of different countering measures: for whom again, against what lost opportunities or reallocated resources? Similarly, who stands to benefit from chosen strategies in terms of direct business opportunities or indirect assets appreciation? Choices of acceptable risks and investments are presented as objective, technocratic necessities, dependent at best on so-called political will, but never explicitly linked to the actual political economy of interests that yet so intensely defines them. As it is, the process conceals vested interests and power relations, notably the different risks and costs of different solutions for different groups.

The compelling threats of climate change, coupled with a gated decision-making circle, provide an unprecedented, long-lasting and lucrative opportunity for some experts and institutions to claim and justify the allocation of resources towards their core businesses. This vested interest does not, in and of itself, necessarily delegitimise, for example, the call for dikes and other climate change protection infrastructures, but certainly provides an additional incentive to make such claim, above and beyond the actual protection and distribution of risk. As pointed out in the case of hydraulic infrastructures, 'there are always some agencies and coalition of associated consultants, firms, and banks whose primary interest is in construction. The views of independent experts are constrained and even subservient to recalcitrant organisational interests'. (Lebel *et al*., 2008: 3).

In the context of climate change, the risk is therefore high of a repeat on a large scale of the post-*Đổi mới* history of public funding awarding (including foreign aid), and, most importantly, speculation and corruption over land allocation, particularly through the spatial redefinition of urban zoning.[15] While large tracks of land are going to be protected behind dikes, and as such hugely appreciated on property markets, other areas will be designated as flood buffers, resulting in dramatic losses for their owners. Such decisions will be made partly on technical feasibility and direct costs, but also, if not mostly, through a process of risk and opportunity-cost distribution and the short-term interests of few decision-makers and profiteers in a position to speculate on the land-market volatility such policies will necessarily entail.

Constructed predictions

The objective of growth and capital accumulation prioritised by the Vietnamese climate change strategy requires the anticipation of future impacts for present time planning and implementation of actions. A minimum of predictability is required to design and implement spatial infrastructures and other adaptation measures, as well as legitimise reallocating resources to such plans. The more predictable the future is, the easier it gets to define and create those capital accumulation opportunities (higher embankments, relocated settlements, genetically modified crops, awareness and training programmes, etc.) that are lucrative to some, and conveniently rendered necessary to others by projecting the compelling image of an ostensible threat.

The Vietnamese authorities have therefore concluded that they would first need to get a positivist, accurate assessment of the magnitude, breadth and timing of climate change biophysical impacts. This requirement of predictability is partly addressed by scenarios, which have informed climate governance globally for over two decades, and are central to the NTP-RCC as a first systematic response to climatic uncertainty. Those scenarios are dependent on how much GHG the world continues to emit, and on the environment's reaction to the resulting concentrations. Scenarios provide some risk assessment, marking the boundaries of the broad uncertainty of future climatic change, but remain unable to provide precise predictions of what will actually happen. As a result, the first explicit task of the NTP-RCC prime-ministerial decree is for scientific authorities to develop more precise and contextual scenarios that can be used as forecasting tools for the purpose of planning adaptation strategies: 'The central and immediate task is to assess changes in climate, develop scenarios, particularly of sea level rise; and gage impacts on different sectors, activities and localities' (Government of Viet Nam, 2008: 3–4).[16]

The number of activities and large sums committed to research in the NTP-RCC clearly do reflect that concern. Three of the 19 clusters of planned activities deal explicitly with research and development of a strategic response (before scaled-up implementation), while all remaining activities also have unspecified amounts committed to assessment of impacts and the development of area-specific solutions. Of the three research components being disproportionally funded, research and strategy development receive at least 43% of the planned NTP-RCC budget (Government of Viet Nam, 2008: Annex 2–18). That commitment will undoubtedly maintain and strengthen Vietnamese research on climate change scenarios that has already been conducted for over a decade. The latest effort, led by IMHEN at MONRE, builds on the IPCC's families of scenarios to localise and detail expected effects (MONRE, 2009).

In their concern for narrowing down possible futures of climate change impact, policy makers therefore seem to have presumed that sufficient scenario research and modelling will necessarily translate into precise estimates of the nature, scope, intensity, timing and pace of climate change, beyond the broad ranges that scenarios are currently providing. In the meantime, until that research investment delivers the required precision, the Vietnamese authorities have selected one scenario among others, assuming that the IPCC midrange one (B2) should be close enough to actual future changes, and is likely to drive realistic programming. That midrange scenario roughly entails averages of 2.3°C of global warming and 75 cm of sea-level rise before the end of this century. As MONRE puts it in July 2009:

> Due to the complexity of climate change and the limited understanding of climate change, both in Vietnam and in the world, together with the psychological, social, economic factors, uncertainty in green house gas emissions scenarios, uncertainties of model-estimated scenarios results . . . *the most harmonious scenario is the medium scenario which is recommended for ministries, sectors and provinces/ cities to use as an initial basis in climate change and sea level rise impact assessment and in the development of action plans to respond to climate change* (emphasis in original, MONRE, 2009: 16; also quoted in October 2009 by Tran Thuc, 2009: 2, Director of IMHEN).

Choosing any scenario as a privileged representation of Vietnam's future, regardless of its mildness or severity, grants the authorities a rationale for either protecting the spatial attributes of given areas, or relocating activities to maintain a continuum of livelihoods within the new attributes expected by the scenario. In other words, claiming to know what to expect powerfully justifies the funding and rolling-out of what is said to be necessary to preserve current assets and maintain economic growth. For example, dikes can then be elevated to new fluvial and tidal levels, neighbourhoods can be moved to higher grounds, and genetically modified crops can be developed and adopted for increased drought and salinity resistance as the attributes of various climatic zones change.

As convenient as it may be, this policy approach nevertheless disregards the inescapable limits of modelling, constrained by both the complexity of climate sciences and the uncertainty of mitigation measures that will or not be implemented in the coming years (see notably Gay and Estrada, 2009). In fact, the various families of scenarios offered by the IPCC and others are proposed as representations of what might happen if the world mitigates GHG to certain levels, by when, and in the context of various possible demographic, social, technological and environmental changes. The IPCC Special Report on Emissions Scenarios (SRES) is clear on the purpose and boundaries of such modelling:

> Scenarios are alternative images of how the future might unfold and are an appropriate tool with which to analyze how driving forces may influence future emission outcomes and to assess the associated uncertainties. They assist in climate change analysis, including climate modeling and the assessment of impacts, adaptation, and mitigation. The possibility that any single emissions path will occur as described in scenarios is highly uncertain (Intergovernmental Panel on Climate Change, 2000: 3).

Scenarios are therefore not meant to provide accurate planning pathways, but rather ranges of alternative futures, all still possible and with widely differentiated climatic impacts. Choosing one is a strategic shortcut that facilitates the technocratic planning process and implementation of programmes that create accumulation opportunities, but at the expense of democratic risk sharing, plurality of options and long-term efficacy. This is particularly dangerous when it comes to policy making and programming that may so profoundly affect the livelihoods of millions of people over the coming decades. Current efforts give a false sense of security, by pretending to know what will happen, and that something is actually being done to prepare for climate change. In fact the character, magnitude and pace of change at local and regional levels remain very imprecise, and preparation based on privileging B2 or any other scenario, at least for the time being, may very well be irrelevant. This is true for any strategy planned on the basis of scenarios, even for those taking more precautionary assumptions at the upper end of temperature and see level rises. Huge amounts could be invested, for example, in protecting

estuary land against a 2 m SLR while changes in river flows due to rainfalls and upstream dams, or in average temperature, pestilence and global markets, may render the protected area unsuitable for the type of activity it was intended for, or for any economic activity or human habitat at all.[17] In the long term, the current approach could therefore result in a critical inability of the Vietnamese society to adapt to swift climatic changes.

For the short-term interests of capital accumulation, however, this risk remains of little relevance. The strategy requires, and is indeed driven by, huge capitalisation, which could very well be ineffective for most communities if reality turns out to be different, better or worse, than the chosen scenario. Yet it is diverting precious resources from more relevant models of adaptation, which could of course be driven from the bottom-up, building the resilience of communities through autonomous, diversified livelihoods more flexible to the uncertainty of future climatic change. This would more likely imply fewer and more distributed opportunities for new or expanded sites of accumulation, along more social than capitalist forms. Unsurprisingly, this may not resonate well with the dominant technocratic and liberal interests discussed above.

Beyond the very fact of choosing a scenario, the motivations and process for selecting a mid-range one among others also begs to be socially and politically problematised. On the one hand, Gay and Estrada (2009) demonstrate how policy-making along mid-range SRES scenarios are biased in favour of relative inaction (reckless attitude), and should be corrected to err on the side of caution. On the other hand, beyond IMHEN recognising that the science remains imprecise, and that mitigation measures are as yet uncertain, in whose interests is such a choice 'harmonious' above a vague reference to psychological and socioeconomic factors? Why is a 75 cm SLR politically acceptable and economically feasible, but not more, or less than any other scenario? What are the costs, risks and benefits of that choice, and who stand to profit or lose from it?[18] In other words, what interests and agenda are concealed by an 'harmonious' scenario, consciously or not? Planning based on a given level of sea elevation, for example, will have huge consequences on human settlements and productive activities, including land use and markets, urban zoning, infrastructure capitalisation and maintenance, natural resources management, etc.

The prevailing practice by Vietnamese policy-makers to privilege a mid-range scenario is therefore far from politically neutral. The strategy conveniently reproduces, expands and legitimises the power relations of capital accumulation, at the expense of collective resources. As noted earlier, it would be beyond the scope of this article to attempt mapping such a dynamic and expose its detailed interests and agendas, but asking those questions is a necessary first step in deconstructing and delegitimising a claim of objectivity that the technocratic process allows and fuels. It will therefore be up to subsequent research to uncover the actual sites of new or expanded accumulation that the strategy nurtures, such as large-scale infrastructure contracts, rezoning (and re-valuing) of entire urban districts, or the wholesale of intellectual property in renewable energy or genetic engineering. A more open debate, recognising the political–economic issues that lie beyond the biophysical dynamics of climate change, would allow dissident knowledge to surface, both from technical and social perspectives. In addition, and maybe even more importantly, it would shed light on climate change not primarily as an environmental problem, but as a developmental and political one.

Conclusion

This article asked through what processes and for which interests the current Vietnamese climate change strategy is being designed, and, if, ultimately, it is likely or not to offer a credible response to the looming threat of climate uncertainty. The findings of this research are not encouraging, for it appears that the emerging Vietnamese strategy largely reflects and reinforces existing power relations in both politics and production, at the expense of a more participative and fair response.

It is argued that from a procedural angle, the technocratic policy-making is exclusionary, restricted to a limited number of privileged insiders, which prevents a pluralist representation of interests. The process narrowly defines the margins of the climate change debate by

focusing on biophysical issues: it serves to legitimise the exclusiveness of the process, but also minimises the role of agency, concealing stakes and struggles behind assumed structural inevitability, and de-politicising analyses and options. This allows for authoritarian, top-down decision making, creating new and expanded sites of accumulation, but also opportunities for profiteering through speculation and rent-seeking. It necessarily obfuscates and perpetuates sectorial interests, preventing transparent and democratic resource allocation for a more equitable and effective policy-making. Furthermore, the national climate change strategy provides an illusion of intervention and security. It largely fails to identify and mitigate the underlying causes of climate change, or to lay the ground for a robust mid- and long-term adaptation strategy that can face up to yet unknown levels of climatic and other structural changes.

The Vietnamese strategic response to climate change could overcome those limitations by broadening participation in the policy-making process (see notably Forsyth, 2003: 231–265; Vogel *et al*., 2007). So far, and as discussed here, a few political and technocratic actors have played a role in this process, largely ignoring the interests of others. The strategy should also widen the agenda towards what Garschagen has called *precautionary reorganisation* (2009: 7; see also Brooks *et al*., 2009: 754) and the concept of transformability as a fundamental restructuring, beyond adaptation, of a social–ecological system (Walker *et al*., 2004). Above all, it should question the country's economic model and reconsider what development and prosperity mean beyond neoliberal growth and output maximisation (Adger, Benjaminsen, *et al*., 2001: 697–699; Adger, Kelly, *et al*., 2001; Princen, 2005; Bäckstrand and Lövbrand, 2007: 131–136; Boyd *et al*., 2008; Boyd and Juhola, 2009: 800; Brooks *et al*., 2009; Jackson, 2009). This would entail embracing paradigmatically different approaches to both mitigation of the model's environmental impacts, and adaptation to unavoidable changes that industrialisation, mostly elsewhere but also increasingly in Vietnam, has inexorably set in motion.

From a research perspective, and to further sort out the details of the political economy of actors, their interests and strategies at play in the Vietnamese context would require an extensive field research far beyond the scope of this work and of what seems to have been done and published to date. There is little primary material available yet, and apparently no secondary sources, to shed light on the actual power struggles linked to climatic change and policies at the local level. At the provincial and national levels, such relations between ministries, agencies and local authorities, state or private companies, foreign donors, or communities remain unexplored beyond the seminal but still initial work of Zink, and, indirectly through hydraulic politics, that of Evers and Benedikter, and Käkönen, cited here. Yet only such types of ground work will eventually excavate the details of how the national climate change strategy is concretely being formed along the dynamics discussed above: that is, through which discourses, influences, enforcement and resource allocations, for whose benefits and at whose expense, and against what resistance.

Such work would no doubt reveal that the critique proposed in this article does not imply that individuals and institutions behind the prevailing strategy, in Vietnam as elsewhere, are necessarily cynical Machiavellians, aware of systemic limits and consciously leveraging them to conceal their selfish interests. The motivations of individual and institutional actors are always complex, and there are of course plenty of genuine concerns from several actors about the likely dramatic impact of climate change in Vietnam. However, there is also much abuse of the crisis for less noble objectives that needs to be exposed.

Notes

1 I would like to thank the editors of *Asia Pacific Viewpoint* and the anonymous reviewers for their detailed comments, which greatly contributed to the argument presented here.

2 For a general discussion of vulnerability, see Adger (1998), Kelly and Adger (1999), Houghton (2004), and Adger *et al*. (2006).

3 Notably the National Office for Climate Change and Ozone Protection, MONRE; the National Institute for Science and Technology Policy and Strategy Studies (NISTPASS), Ministry of Science and Technology (MOST); the Steering Committee for Climate Change Adaptation and Mitigation, MARD; the Central Committee for Flood and Storm Control (CCFSC). For an organisational chart of MONRE, see Chaudhry and Ruysschaert (2007: 8).

4 UNFCCC and Kyoto Protocol Status of Ratification: http://unfccc.int/essential_background/convention/status_of_ratification/items/2631txt.php and http://unfccc.int/kyoto_protocol/items/2830.php.
5 A partial list of NGOs active in the field of climate change in Vietnam (dated 10 March 2008) can be found at http://www.ngocentre.org.vn/ccwg.
6 For a discussion on the significance of such new sites of accumulation in shaping policies and stimulating investments, notably in the context of Clean Development Mechanisms of the Kyoto Protocol and the promotion of renewable energy technologies, see Matthews and Paterson (2005: 66–68).
7 Compiled from Vietnam General Statistics Office (http://www.gso.gov.vn/default_en.aspx?tabid=491), 'General poverty rate by residence and by region', retrieved 30 December 2009, and Trần Thị Thu Trang (2009: 166).
8 Author's translation from 'đảm bảo sự phát triển bền vững của đất nước, tận dụng các cơ hội phát triển nền kinh tế theo hướng các-bon thấp và tham gia cùng cộng đồng quốc tế trong nỗ lực giảm nhẹ biến Đổi khí hậu'.
9 For a discussion on how decarbonisation provide opportunities to expand or create new sites of capital accumulation, see Matthews and Paterson (2005).
10 Author's translation from 'Theo nguyên tắc "Trách nhiệm chung nhưng có phân biệt" được xác định trong Công ước Khung của Liên hợp quốc về biến Đổi khí hậu, Việt Nam sẽ thực hiện có hiệu quả chương trình giảm nhẹ biến Đổi khí hậu khi có sự hỗ trợ đầy đủ về vốn và chuyển giao công nghệ từ các nước phát triển và các nguồn tài trợ quốc tế khác'.
11 Author's translation from 'Để đáp ứng các nhu cầu phát triển kinh tế-xã hội, Việt Nam sẽ tiếp tục khai thác, sử dụng nhiên liệu hóa thạch và hệ quả là sẽ tăng lượng phát thải KNK. Tuy nhiên, thấy rõ nguy cơ tiềm tàng của BĐKH và ý thức vai trò của một Bên không thuộc Phụ lục I tham gia Công ước Khí hậu, Việt Nam với điều kiện và khả năng có thể, sẽ xây dựng và thực hiện các giải pháp để giảm nhẹ mức phát thải KNK. [.] Việt Nam sẽ thực hiện có hiệu quả việc giảm nhẹ phát thải KNK nếu có sự hỗ trợ đầy đủ về vốn và chuyển giao công nghệ từ các nước phát triển và các nguồn tài trợ quốc tế khác'.
12 By which the initial investment costs into a replacement technology or process are less than the direct savings eventually realised by this replacement.
13 See notably Forsyth (2003); Boyd and Juhola (2009: 797–798). Adger (1999, 2000) also provides an extensive discussion of the relevant literature on the dichotomy between environmentally focused and socially focused analyses, and the need to overcome that gap, in relation to the concepts of social resilience and vulnerability.
14 From discussions with researchers and officials from government and international agencies, Vietnam, May–August 2009. This is consistent with other observations of processes within the Vietnamese bureaucracy (see notably, Painter, 2005: 277).
15 This is of course not unique to Vietnam, and has been documented at length for other countries. See notably, Paterson (2000: 76–77).
16 Author's translation from 'Nhiệm vụ trọng tâm cần thực hiện ngay là đánh giá diễn biến khí hậu; xây dựng các kịch bản biến Đổi khí hậu, đặc biệt là nước biển dâng; đánh giá tác động của biến Đổi khí hậu đến các lĩnh vực, các ngành và các địa phương'.
17 Mira Käkönen (2009: 208–209) showed how changes in markets, with the rise of shrimp aquaculture in the mid-1990s, have challenged the utility of massive protection and irrigation investments made in the Mekong delta during the previous two decades (Hoanh *et al*., 2003; Tuong *et al*., 2003; Miller, 2007; see also Biggs *et al*., 2009: 220–221). If relatively minor changes in market demand can have such consequences for the value of infrastructures, one can expect the uncertainty of climatic changes to be significantly more disruptive.
18 Lebel *et al*. (2009) provide a similar analysis, but in the context of flood prevention and for dikes and drainage systems.

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