



# Cosmopolitan China? Lessons from international collaboration in low-carbon innovation

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## Abstract

Cosmopolitanism is the focus of much current debate. This literature, however, is marked by a relative paucity of detailed research that examines the impact of cosmopolitanism as a social force within different societies. In particular, two topics that have received little attention despite their utter importance for current global challenges are the scale and impact of cosmopolitanism in China and the significance of 'cosmopolitan innovation'. This paper explores both on the basis of evidence from over 70 interviews with parties involved in low-carbon innovation, a field that may be considered to be particularly propitious for cosmopolitan motivation. We argue that there is distinct evidence of cosmopolitanism in China but that this is a relatively fragile and elite development, despite China's increasingly deep integration into global networks and flows. Furthermore, the cosmopolitanism in evidence is a distinctly Chinese version, thereby offering important lessons regarding the nature of cosmopolitanism *per se* and the reciprocal challenge of China to the existing cosmopolitanism of the global North.

**Keywords:** Cosmopolitanism; China; innovation; climate change; science

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... the bourgeoisie has through its exploitation of the world market given a cosmopolitan character to production and consumption in every country ... National one-sidedness and narrow-mindedness become more and more impossible (Marx and Engels 1952 [1848]: 46–7).

## 1. Introduction

Cosmopolitanism is the focus of much current debate, including significant contributions in this journal (*British Journal of Sociology* 2006; Beck 2006,

Beck and Grande 2007; Delanty and He 2008). This literature is however marked by a relative paucity of detailed research that examines the impact of cosmopolitanism as a social force within different societies. In particular, two topics have received relatively little attention despite their importance for current global challenges, namely the scale and impact of cosmopolitanism in China and the significance of 'cosmopolitan innovation'.

With regard to the latter, various global risks have precipitated calls for a 'cosmopolitan innovation' regime, a global regulatory architecture to stimulate the international collaboration in innovation necessary for development of various global 'public goods' (Leadbeater and Wilsdon 2007). The most striking imperative for such an innovation regime is to facilitate global transition from high- to low-carbon economic-social systems (Tyfield, Urry, Wilsdon and Wynne 2008). Analysis also suggests the potential for feedback loops between cosmopolitanism, a global public sphere and global efforts to tackle climate change. And as the largest absolute emitter of greenhouse gases, a rapidly developing economy and a potential future geopolitical superpower or world hegemon, China is central to any such developments (Wilsdon and Keeley 2007).

In this paper we explore the growth of cosmopolitanism as a social force within China, using the case study of international collaborations in various 'low-carbon' innovations within the fields of agriculture, energy and transport.<sup>1</sup> We show evidence for an emergent cosmopolitanism but one that so far is an important social force only within a small internationalized elite. It is a fragile force, constrained both by stalled political transition from within and by neoliberalism from without. We examine whether global mechanisms to encourage international collaborations in low-carbon innovation may strengthen embryonic cosmopolitanism and develop feedback loops of 'progressive' social change. A crucial aspect of this process, however, is the reciprocal challenge of a specifically Chinese cosmopolitanism that the global North, and its existing conception of cosmopolitanism, must accommodate. As such, the case of China offers important lessons. Cosmopolitanism is never abstract and universal, but comprehensible in specific socio-historical configurations and this social self-understanding is crucial for the broader cosmopolitan project.

This somewhat speculative paper proceeds as follows. Section 2 explores the relations between cosmopolitanism and innovation, through outlining five components of cosmopolitanism. Section 3 considers the general evidence for emergent cosmopolitanism in China. Section 4 focuses the discussion within innovation, with analysis of around 70 semi-structured interviews conducted with scientists, businesspeople and policymakers involved in international collaborations in and with China around the 'global' issue of low-carbon innovation. We close with reflections on the possible, probable and preferable futures for a cosmopolitanism that in some sense involves China.

## 2. Cosmopolitanism, globalization and innovation

Cosmopolitanism has recently received much attention in the social sciences, due to the challenges, both practical and analytical, of multiple global processes, such as critiques of 'methodological nationalism' (Beck 2006, *BJS* 2006, Beck and Sznaider 2006). Cosmopolitanism is highly contested with six main conceptions (Vertovec and Cohen 2002): as a socio-cultural condition (Appadurai 1996); as a philosophical or world-view as in Beck's 'cosmopolitan manifesto' (1998); as a political project to build transnational institutions (Kaldor 1996); as a political project for recognizing multiple identities (Held 1995); as a mode of orientation to the world (Hannerz 1990); and as a set of competences which allow one to make one's way within other cultures (Friedman 1994).

We draw on all these, seeking to develop a 'critical cosmopolitanism'. We hold that 'cosmopolitanism' is an emerging social force in the contemporary world; that it is a force that competes with and is at odds with many other such forces; that there are a variety of cosmopolitan projects; that it is to be formulated as simultaneously normative *and* descriptive; that its extent, scale and significance is empirically researchable; and that a necessary if not sufficient condition of low-carbon innovation is the increased power and purchase of such a cosmopolitan condition (see Delanty and He 2008).

Such an approach is opposed both to the premature universalism of 'global reductionism' and the particularism of chauvinistic nationalism. It also challenges the universality of a global ethic of concern although noting its normative appeal (Fine 2003; Delanty 2005). This formulation is simultaneously normative and descriptive of an emerging, if contested, social force. For instance, attempts to identify cosmopolitanism with social phenomena such as plurality, diversity, transnationalism and so on omit the striving to alternative models of modernity and self-questioning that makes cosmopolitanism a social force in the first place (Delanty 2006b). Conversely, normative discussion of cosmopolitanism that fails to situate itself within analysis of concrete political, economic and cultural circumstances can drift into universalizing abstract discourse (Fine and Cohen 2002).

Cosmopolitanism and 'globalization' should not be conflated although they are closely connected. The cosmopolitan is a crucial aspect of the 'global' while a social force can hardly be called 'cosmopolitan' unless it employs some concept of the 'global'. But it is the interaction of cosmopolitanism with diverse 'global' processes that is crucial. Examining this interaction presupposes their analytical distinction. Such dualism is also necessary if we are to accommodate how cosmopolitanism can resist globalization as a political project. Similarly, not all global processes are necessarily cosmopolitan, let alone normatively desirable, such as global crime and global terror (Sassen 2006).

1 A further major issue concerns the relationship of cosmopolitanism with  
2 nationalism (see Billig 1995, on 'banal nationalism'; Szerszynski and Urry 2002,  
3 on 'banal globalism'). Cosmopolitanism is not necessarily incompatible with  
4 the social imaginary of national solidarity, cultural identity and democratic  
5 politics (Calhoun 2007, Appiah 2002). Indeed cosmopolitanism and a 'nation- [1]  
6 alism' of solidarity can be dialectical twins, as we examine in the case of  
7 contemporary China. The former presupposes the latter in its respect for both  
8 local difference and the need for a politics of solidarity; the latter presupposes  
9 the former in the reflexivity needed for a democratic politics. Both are projects  
10 of modernity, of 'imagined communities' (Anderson 1983) and 'invented' tra-  
11 ditions (Hobsbawm and Ranger 1983). Beck and Grande characterize this as a  
12 'cosmopolitan realism', that national interests can be bound in, transformed  
13 and made more powerful through international openness and collaborations  
14 across borders (2007: 220).

15 We now turn to cosmopolitanism *per se*; we propose five components of  
16 'cosmopolitanism' as a socio-cultural force in the contemporary world and  
17 examine below whether, to what degree and where these characteristics are  
18 powerful within China.

- 19 1. *Extensive mobility* in which people have the right and means to 'travel'  
20 corporeally, imaginatively and virtually; to experience many places and  
21 environments *en route*; and a curiosity about other practices, places and  
22 peoples.
- 23 2. *Global openness* to other peoples and cultures and a willingness/ability of  
24 members of a society to appreciate and incorporate elements of the  
25 practices /language/ culture of various 'others'.
- 26 3. *Social reflexivity and imaginaries of alternative modernities*, a willingness  
27 to take *risks* by virtue of encountering the 'other', involving self-  
28 transformation, incompleteness, lack of certainty and uncertainty.
- 29 4. *Social plurality and a developed 'civil society'*, both as indicating cultural  
30 interaction and as spaces in which reflexivity may be manifest.
- 31 5. *The presence of a global 'public' sphere or space*, that is: 'the always ever  
32 present sphere of discourse that contextualizes political communication  
33 and public discourse' and which is constituted and reproduced through  
34 multiple interactions often over large distances (Delanty 2006b: 36).

35 There is one further relationship to explore here: there is broad consensus  
36 that innovation, or knowledge work or 'STI' (science, technology and innova-  
37 tion) is a key globalizing process. What is the relationship between cosmopoli-  
38 tanism and innovation? Furthermore, as innovation is more significant, so how  
39 it is understood has broadened from the narrow introduction of new products  
40 by individual firms in pursuit of profit to one recognizing innovation's funda-  
41 mental social situatedness. Indeed as a process involving numerous actors and  
42 forces, scholars have pointed out the different sociotechnical trajectories of

what comes to be identified as 'innovation' (see Urry 2008a). Choice is a social process and not a teleological one subject to technological rationality (as Tuomi 2003, shows with the internet). Developments in innovation increasingly emphasize the importance of dispersed, networked forms, often incorporating users and 'disrupters' and employing open-access rather than proprietary models. Some claim a 'democratizing' of innovation (von Hippel 2006; Willis, Webb and Wilsdon 2007). These changes redefine it as a socio-political process, the direction of which is set by dominant imaginaries of the future and 'civic epistemologies' within each social formation (Jasanoff 2005). Cosmopolitan imaginaries would seem to offer much for envisioning appropriate global regulatory regimes (Leadbeater and Wilsdon 2007).

Further, such cosmopolitanism has been complicatedly intertwined with 'neoliberalism' over the past two to three decades. Harvey describes how neoliberal processes involve 'accumulation by dispossession' (2005: 159–61). This neoliberalism has become the dominant global orthodoxy articulated and acted upon within most corporations, many universities, most state bodies and especially international organisations such as the World Trade Organization (WTO), World Bank and the International Monetary Fund. In particular its global regulatory architecture of an international 'level playing field' is stacked in favour of the developed economies of the global North, most obviously in the WTO's intellectual property agreement, TRIPs, which was drafted by (largely US) transnational companies *for* transnational companies and instituted as global economic law (Sell 2003; Drahos, Braithwaite 2002). This neoliberal settlement dispossesses local involvement and innovation capacity (Rodrik 2007). It is a premature global universalism and one privileging global finance not innovation for the global public good.

What would a 'cosmopolitan' innovation regime be like? To the extent to which the components outlined above were found then that regime would be 'cosmopolitan':

1. Extensive movement of ideas, scientists, entrepreneurs; widespread use of technologies to travel virtually; and a curiosity about innovations and developments occurring in many other places.
2. Openness to innovations taking place elsewhere; and a motivation that privileges neither short-term financial profit nor national geopolitical power, critiquing both neoliberal global reductionism and technonationalism.
3. A willingness to take risks through encountering the 'other'; innovation would involve self-transformation, incompleteness, uncertainty and contingency.
4. Innovation drawing upon and feeding back into 'civil society', especially the idea of innovation as involving various 'disruptive groups' within civil society.

5. Innovation involving emergent global publics formed through civic engagement around the world, especially responding to and seeking to resolve major global risks.

The impediments to cosmopolitan innovation come from all sides, including the global North, with its neoliberal universalism and its techno-nationalism centred on US interests (see Klein 2007). But China is also a crucial player as a growing global power and a rapidly industrializing economy that includes nearly one fifth of the world's population. In the following we explore first, the evidence of an emergent cosmopolitanism in China; and, second, whether a putative cosmopolitanism is emerging through international collaboration in low-carbon innovation (see Delanty 2006a, on cosmopolitanism in East and West).

### 3. Cosmopolitanism in China

We first explore the relationship between cosmopolitanism and nationalism in China. As a multi-ethnic empire with significant trading connections and subject to various invasions (Mongol, Manchu), its long pre-modern history shows considerable 'cosmopolitan' aspects (Lovell 2006).<sup>2</sup>

The fundamental dilemma is how to be modern *and* Chinese. Modernity was historically thrust upon China through its encounter with European capitalist imperialism. This confronted China, as a pre-modern imperial state, with the stark discrepancy between its own long-standing self-image at the centre of the world (*Zhongguo*) and its actual geopolitical weakness. The conclusion drawn was the connection between the strength of western states and their economic 'development'. A fundamental faultline of this ongoing contested social process of China's modernity is thus between a strong, static and enclosed nation-state, seeking to strengthen itself and be restored to its 'rightful' place, and the 'means' to achieve this, namely the disruptive process of economic industrialization and development – a tension, insoluble in the abstract, captured in the phrase 'western means, Chinese essence' (*xiyong zhongti*).<sup>3</sup> To this day the national project of economic 'catch-up' and hence geopolitical strength, remains of overriding concern within Chinese thought. Indeed, the tension is heightened in the present 'reform and opening up', as economic development increases disruptive and fluid flows of capital and global markets that unsettle an authoritarian state.

Further, assessments that define cosmopolitanism and nationalism as incompatible opposites will fail to find cosmopolitanism in China.<sup>4</sup> Yet in an age of growing Chinese power, conceptualizing the dialectical relation between cosmopolitanism and nationalism is crucial, for it is only in this context that a specifically *Chinese* cosmopolitanism can begin to be traced.<sup>5</sup> For instance,



there has been a particularly vigorous debate in the last twenty years regarding cosmopolitan themes. The 1980s television series *River Elegy* caused such a stir by contrasting the sluggish Yellow River (the cradle of Chinese culture) with the open, dynamic blue ocean into which it flows, that the series was banned shortly after it was aired. China has, of course, changed dramatically since then, most importantly through its increasing sociological 'cosmopolitanization' (Beck and Sznaider 2006), but the debate about openness to the world (and the dominant 'West') and preserving Chinese specificity continues (Leonard 2007; Gries 2004). A specifically Chinese cosmopolitanism may thus be expected, just as a specifically Chinese geopolitical model or 'Beijing Consensus' is developing (Ramo 2004).

Indeed, the distinction between cosmopolitanism and the dominant American-led neoliberal 'Washington Consensus' is also crucial (Klein 2007). For instance, a proto-cosmopolitan observer may be tempted to align cosmopolitanism *against* the introduction of capital flows, which are seen as western impositions destructive of indigenous Chinese social formations. But as Ong (1999) stresses, this conflation of capital and the West is a mark of a Eurocentric prejudice since overseas investments in China often originate with 'overseas Chinese'. These capital flows may be the source of imaginaries of alternative modernities to western neoliberalism.

We now examine the five components of cosmopolitanism. First, contemporary China is open to global flows, this being one of the most evident changes of the 'reform and opening up' since Deng Xiaoping. China is the fourth largest country for inbound tourism and according to the United Nations World Tourism Organization, by 2020 it will be the largest tourism destination-country and the fourth largest for generating overseas travel.<sup>6</sup> China is also the top recipient of foreign direct investment amongst developing countries (behind only the USA, UK and France in 2005), the second largest exporter in the world by 2007 behind Germany, and the third largest in total international trade (aggregated exports and imports) behind the USA and Germany (UNCTAD 2008).

There is also a markedly positive attitude to economic openness amongst both the government and large, influential sections of the population. The Chinese economy has developed in close connections with the Chinese diaspora, spread across southeast Asia (*Nanyang* or 'southern ocean'), and its internationally dispersed business model (Ong 1999; Arrighi 2008). Thus the disciplinary regimes of global capitalism, the PRC state and the Chinese family (with its extended connections of *guanxi*) (Ong and Nonini 1997) together stimulate a *prima facie* enthusiasm towards openness (see Delanty and He 2008: 334).

The media's role in creating imagined communities is related. Yang (1997) details the widespread preference within Shanghai for overseas television and radio shows. Hewitt (2007) discusses the profound changes in Chinese society,

particularly amongst the 'me generation' of the young, who self-consciously adopt attitudes from their overseas idols, including garish dress and relative sexual liberation unthinkable in the 1980s. Much of this cultural openness seeks access to other Asian, not 'western', youth cultures ('Cantopop' from Hong Kong or bands from Taiwan, Korea and Japan) (Ong 1997, Hewitt 2007).

The most striking example of the contradictory attitude to global openness is arguably the 2008 Beijing Olympics. The discourse of 'international togetherness' (in its slogan 'One World, One Dream') is at odds with how the Olympics is also a global competition *between* nation-states (Economist 2008a; Urry 2008b). The cosmopolitan openness of the Olympic 'celebrations' was also undermined by the protests against the torch relay and strident nationalism in response. When confronted by contested opinions about Tibet that destroyed the appearance of a happy (or triumphant) homecoming parade, for many Chinese the openness quickly evaporated. Similarly criticism of the Games as the 'no fun games' (Crabbe 2008; Economist 2008b) and, more objectively, the clampdown on visas making it difficult to enter the country, the huge police presence in Beijing from May, and the introduction of laws to constrain spontaneous parties and outdoor alcohol consumption, all showed how an open celebration of global fraternity was not *the* priority.

The continuing one-party system adds a layer of structural conditioning: not only must China reclaim its national pride and place in the world, but only the CCP can lead China to this goal (Gries 2005). Furthermore, nationalism is deployed by the CCP as a trump card against political challenge, especially given the downgrading of communism as its ideological focus to the empty signifier of 'socialism with Chinese characteristics' (Hughes 2007). Thus the CCP Government institutionalizes the tension of opening up, both economically to overseas capital and culturally. [2]

Regarding the third issue, the entire modern history of China is one of exploring alternative modernities (Mitter 2004). But it is an open question to what extent this shows cosmopolitanism. For instance, even amongst educated workers employed by western businesses, recent interviews displayed little acknowledgment of the *political* importance to China of staging the Games and widespread assent to the simple Olympic ideal of keeping 'sport and politics separate'. The internet campaign following the torch relay protests, in which young Chinese browsers were encouraged (and in some cases bullied) to display a '♥China' symbol, also displays the dual-edged nature of the meteoric emergence of the internet. On the one hand, it is a site of much venting of anger and one relatively tolerated by the authorities as a useful safety valve, preferable to actual assembly and protest. On the other, the internet has introduced some space for critical reflexivity and debate, yet its potential anonymity and fluid mass visibility means it can be used for propagating intolerance and bullying (Economist 2008c).<sup>7</sup> [3]



1 The widespread lack of accommodation to the uncertainty and contingency  
2 of modernity is also visible in Chinese civil society. A *gesellschaft* civil society  
3 is based upon an epistemological pessimism regarding the capacity of an  
4 enlightened and virtuous government to gauge the needs of its population  
5 (Metzger 2002). Chinese civil society, however, has followed the Confucian [4]  
6 lead and remains, via Maoist thought regarding the dictatorship of the prole-  
7 tariat, within the *gemeinschaft* tradition (Bell 2007). It is culturally opposed to  
8 the social embedding of a scepticism regarding knowledge claims and their  
9 authority. The continuous thread of the national development project adds to  
10 this dynamic. In the context of an apparently straightforward goal of national  
11 'catching-up', fallibility and its political implications are made to seem irrel-  
12 evant (Metzger 2001).

13 This is also shown in the continuing weakness of a civil society or public  
14 sphere. The growth of NGOs is certainly significant particularly in environ-  
15 mental issues (Tang and Zhan 2008), but NGOs have to be officially registered  
16 with the central state. The rights to protest also remain greatly limited, as  
17 shown at the time of the Olympics (Dickie 2008). But Chinese society is not  
18 simply subdued. Even according to official figures, rural protests have hugely  
19 mushroomed in recent years from 10,000 in 1994 to 74,000 in 2004, involving  
20 some 3.76 million people, while a further doubling of protests to nearly 150,000  
21 in 2005 has been reported (Pan 2005). And the deepening environmental crisis  
22 and the unprecedented scale of China's urbanization suggest increasing social  
23 unrest. In the emergence of a relatively educated, consumer-literate and sexu-  
24 ally liberated generation (Hewitt 2007), Chinese society is also undergoing  
25 significant transformation at the apex of its stratification system.

26 Finally, identification with a 'global' public or awareness of issues such as  
27 climate change as quintessentially 'global' issues, in which the Chinese popu-  
28 lation is crucially implicated, remains relatively low. The absence of the 'global'  
29 is more prominent inland, where the 700+ million rural peasants have little  
30 interaction with 'foreigners' except occasionally via the media and the  
31 internet. Nor do government pronouncements evidence much strategic calcu-  
32 lation in terms of a 'global' public. Despite speculation as to whether China is  
33 set to replace the USA as global hegemon, the Chinese state, under its banner  
34 of 'peaceful development' ('peaceful rise' having been discarded as the con-  
35 notations of 'rise' were deemed too aggressive), does not seek responsibility  
36 for developing or maintaining 'global order', not least when it is already facing  
37 extraordinary domestic social challenges.

38 Thus cosmopolitanism does not have strong impact but it is, nevertheless, in  
39 evidence. In the next section we discuss this emergent cosmopolitanism from a  
40 site propitious for its development: international collaboration in the quintes-  
41 sentially global issue of 'low-carbon' innovation. A distinct cosmopolitanism is  
42 developing here with significant implications for China, the world and existing  
43 understandings of 'cosmopolitanism' in the global North.

#### 4. Cosmopolitanism in STI: international collaboration in low-carbon innovation

We examine below interviews with Chinese researchers involved in international collaborations on low-carbon innovation, regarding the five components of cosmopolitanism.<sup>8</sup>

The first two issues concern the overall global openness of Chinese STI. Given the centrality of STI in China's project of national development and the wider emergence of (the discourse of) a knowledge-based economy, global openness in STI has the structural support of both state and capital within China. This is revealed in the biographies of many of the interviewees.

As regards international mobility, almost all interviews were conducted in English or with minimal interpreter involvement (these interviewees were conducted by Tyfield who speaks basic Mandarin). Some 80 per cent had studied abroad for a prolonged period and/or travelled internationally at least once or twice a year, to international conferences or to meet with international partners. This is not unrepresentative of Chinese research. For instance, at Nanjing Agricultural University, a good but not top-ten institution, 80 per cent of staff have overseas experience and 20 per cent have foreign degrees. There is significant support for such travel.

Secondly, in science, discourses of the intrinsic globalism of science, a borderless language of reason, are accompanied by effectively unanimous commitment amongst interviewees as to the benefits of international collaboration for the status, quality and impact of Chinese science and innovation. Indeed, citation analysis reveals that international collaboration significantly increases the global impact of papers by Chinese scientists (Tyfield, Zhu and Cao 2009). International collaboration is positively encouraged and sought after, both in major cities such as Beijing, Shanghai and Nanjing and in more remote regions, where it boosts a scientist's *domestic* standing.

Scientists and policymakers also acknowledge the importance of returnees and research exchange programs in which overseas scientists have visiting fellowships within China. Stimulated by policy changes to encourage such movement, Chinese-born scientists are thus returning in increasing numbers (Wang and Zheng 2005), giving rise to (albeit controversial) statements from some commentators that the former 'brain-drain' is becoming a 'brain circulation' (Saxenian 2006; Jasanoff 2007). Such 'sea-turtles' (a pun on the Chinese for 'returnee'), however, are often disaffected by the cool reception of their new Chinese colleagues who may be on less generous salary bands, or by unfamiliar levels of bureaucracy (Wilsdon and Keeley 2007).

In business-led innovation, most Chinese enterprises currently lack the innovation capacity to be competitive on global markets or to tackle the environmental problems with which China is faced (OECD 2008). As business is competitive and is devoid of the Mertonian discourse of the 'republic of

1 letters' present in science, however, the tensions associated with such global  
2 openness are more apparent, namely as a means towards greater *domestic*  
3 economic power. The most crucial issue here is that of intellectual property  
4 rights.

5 This conditioning by the nationalist development project, however, is also  
6 present in science, though the discourse of intrinsic openness allows it to be  
7 more easily concealed. Indeed, the primary motivation for international col-  
8 laboration amongst respondents is to improve the quality of *Chinese* science.  
9 This underlying nationalism is most striking given that interviewees were  
10 involved in low-carbon-related research, in which the global rationale of  
11 combating climate change may be expected to have some impact regarding  
12 their motivations for work generally and for international collaboration in  
13 particular. Yet even amongst senior researchers committed to the import-  
14 ance of mitigating 'global climate change', the national project remains  
15 fundamental. Various interviewees said that 'serving national development is  
16 our number one priority' and that 'China will do what it wants [regarding  
17 climate change] anyway' (Interviews with leading Chinese scientists, dated  
18 23/4/08 and 9/5/08 respectively). This is best intelligible as a specifically  
19 Chinese-inflected cosmopolitanism.

20 The best example of this interplay of nationalism and cosmopolitanism, and  
21 the Janus-faced nature of current cosmopolitanism in China, is the govern-  
22 ment's policy of indigenous innovation (*zizhu chuangxin*). Mistakenly trans-  
23 lated by the Chinese state news agency as 'independent innovation', this policy  
24 in 2006 elicited much China-criticism especially in the USA (NAS 2005). This  
25 focused particularly on the third of the 'three pillars' of the policy, namely  
26 'absorption of foreign technology', which was (mis-)understood as a frank  
27 admission of government policy as involving the 'theft' of intellectual property  
28 from overseas companies, hence making it a techno-nationalist and protection-  
29 ist policy akin to Japanese and Korean developmental precedent (and every  
30 other developed country: Chang 2005; Segal 2003; Corning 2004; Wilsdon and  
31 Keeley 2007). Yet, some accounts of the negotiations of the policy suggest that  
32 this pillar was specifically introduced to flag the continuing *openness* to over-  
33 seas innovation.

34 In any case, to the extent that a cosmopolitan innovation regime is one  
35 concerned with global equity and the capacity to deal with global problems  
36 such as climate change, it seems to demand that China has strong science and  
37 innovation capabilities or at least is not precluded from developing them  
38 (Tyfield and Wilsdon 2009). For only in these circumstances can China con-  
39 tribute to a global shift to low-carbon societies that marks a cosmopolitan  
40 innovation regime. In this context, however, the importance attached to  
41 national development (Gao 2008; Nolan and Wang 1999; Rodrik 2007) is not  
42 unreasonable, given that the systems necessary for strong science and inno-  
43 vation capacities can only be incubated with a national industrial policy. So

long as Chinese nationalism is interpreted as prioritizing global openness there is no reason to consider it averse to emergent cosmopolitanism, as the case of (low-carbon) innovation illustrates, but one that is characteristically *Chinese*.

The third component concerns social reflexivity and alternative modernities. On the one hand, science has always assumed great importance during the process of China's modernity and especially during reform and opening up.<sup>9</sup> Most recently, this has resulted in the slogan of 'scientific development' as the guiding principle of the Medium to Long Term Plan of 2006 (Schwaag Serger and Breidne 2007). But on the other hand, this has generally manifested itself in a technocratic faith in science that misses the contingency and openness of scientific practice. This scientific interpretation is also apparent in an almost ubiquitous technofetishism in Chinese policy and popular discourse, conflating 'innovation' with 'technology' and both with 'progress'; a trope very common in the global North but increasingly repudiated in the scholarly literature. Chinese innovation policy is dominated by a 'linear model', so that the broader role of innovation within social change and of its social embeddedness are rarely examined.

Similarly regarding an emergent civil society and its participation in science and innovation, there is a striking discrepancy between the moves towards public engagement in science (Wynne 2006; Wynne, Wilsdon and Stilgoe 2005) and the 'democratization' of innovation (von Hippel 2005) in the EU and their almost total absence in China. Engagement with science remains locked into a 'deficit' model of communication, in which those with knowledge and authority (now based on their expertise, formerly on their 'redness') are seen as enlightening those located 'beneath' them. [5]

The fixation on economic and geopolitical 'catch-up' is a primary factor behind this interpretation. With the apparently 'clear' goal of meeting and beating the developed countries, the different imaginaries and possible trajectories of socio-technical change are excluded as mere nuance. The potential for science and innovation to contribute to the emergence of a cosmopolitan China through a participatory knowledge politics is not strong. *Prima facie*, then, STI in China does not demonstrate significant cosmopolitanism here.

However, we have already noted the almost unanimously high regard in which international collaboration is held. Furthermore, while most interviewees had little to say concerning the benefits of international collaboration for issues of reflexivity and/or civil society, around one-fifth offered strikingly cosmopolitan sentiments. These interviewees argued that the *primary* benefit of international collaboration is the challenge it effects to Chinese culture more broadly. This is so in at least three ways: challenging traditional Confucian respect for the opinions of elders with a culture of critical thought; challenging cultures of hierarchical promotion depending upon bureaucratic obedience rather than merit based on the quality of hypothesis-driven science;

and challenging traditional mores of familial (or party), and hence exclusive, loyalty with instead an egalitarian concern for non-identified others.

One interviewee stated bluntly that 'humanity is not a common Chinese concept' (Confucian humanism notwithstanding) and that he had only learnt it, and grown from so doing, through international collaboration (Interview dated 27/5/08). Another senior scientist claimed that she had gained a 'sense of humanity' from her time abroad, emotionally adding that: 'The most important reward from my time in the UK is making me think about others and care about them no matter where they are from', including not only overseas but also poor parts of China itself (Interview dated 29/5/08). Indeed, what is equally significant is that in each case such sentiments were accompanied by explicit recognition of the importance of national development and a revitalized sense of respect for Chinese culture. We thus see the beginnings of a specifically Chinese cosmopolitanism.

Finally, there is some evidence of 'global' publics. The aspiration for international collaboration, compounded by the growing influx of returnees who are already well integrated into global networks, brings with it broad awareness of a putatively 'global' stage for both science and innovation, and the desire to be part of these 'global' scientific and/or business 'communities'. The evidence of an emergent pan-humanism from international collaboration also evidences a growing 'global' subjectivity and roughly one half of our interviewees expressed the importance of 'global' awareness in some fashion.

Yet this cosmopolitanism is complicated by other trends. Interviewing immediately after the torch relay protests, several respondents described these differences of opinion regarding Tibetan independence as 'cultural differences', identifying them as the single most important barrier to international collaboration. While justified in the allegation that there is striking ignorance in the global North in general about contemporary Chinese society (but see Bell 2007), the reification of opinions on Tibet as deep 'cultural' differences suggests that these interviewees viewed as China as pitted against the 'world' rather than as encompassed within it.

Similar geopolitical tensions are also in evidence regarding attitudes to climate change and the presence or absence of the 'global'. Even amongst those involved in 'low-carbon' collaborations, climate change is often not seen as an imminent 'global' problem for *China*, by contrast with its air and water pollution problems. Nor is climate change seen as an issue for which China must assume significant responsibility if it is to be a good global citizen, though this is arguably changing rapidly at least within the top levels of the state (e.g. State Council 2008, NDRC 2008).

No doubt this response is conditioned by the international politics of a climate change deal. The approach of the global North remains one of limited efforts to effect emissions reductions together with criticizing the emerging industrial economies, the 'BRICS', to which much of their industrial emissions

have been offshored (Wang and Watson 2007), while developing countries remain the most vulnerable to climate change and the least responsible (Roberts and Parks 2007). The Chinese are generally indignant at demands that they should forego economic development to 'save the planet' while the global North continues along its own high-carbon path. The political will to accept any responsibility is lacking until the global North acts effectively. Even so, the position regarding climate change amongst most interviewees was phrased in terms of relative indifference or a defensive *tu quoque* rejoinder. This does not, therefore, evidence much of a 'global' subjectivity, as would a frustration with the global North for *its* failure of its 'global' responsibility and the impossible position in which this puts China regarding any measures it may pursue.

Finally, despite the growing awareness of a 'global' stage for science and innovation and a desire to be involved in it, the predominant calculations and concerns even of those involved in international collaborations focus on domestic problems, opportunities and markets. This is not to condemn this focus or dismiss it as parochial since 'domestic' for mainland Chinese does involve nearly one-fifth of the world's population (and mirrors the historic parochialism of the USA)! Yet the everyday integration of the 'global' into operations and strategic calculation generally remains significantly less prevalent than in the global North. As such, it seems that Chinese science and innovation does not much participate so far in the ongoing reconstruction of 'global' relations.

## 5. Conclusion

We have explored emergent cosmopolitanism within China. We examined some prospects of a cosmopolitan innovation regime to help effect the global shift from high to low-carbon economies/societies. We found significant evidence of emergent cosmopolitanism amongst STI institutions involved in international collaborations. By contrast with the broader 'globalization' of Chinese society, this cosmopolitanism impacts upon a small elite and is embryonic. It is generating a distinctly Chinese cosmopolitanism developing in parallel with the integration and astonishing rise of China upon the global stage.

The endpoint of this cosmopolitan trajectory is unclear. But in so far as China's national development project is successful, China will increasingly develop an 'imaginary' to mobilize cultural power commensurate with its economic (and military) might, even if it explicitly repudiates global dominance. Any such project, however, must offer a unifying ideal to the world of greater appeal than simply submitting to China as *China*, even a great and prosperous China. The challenge of developing a specifically Chinese cosmopolitanism will be integral to this project, but is a singularly difficult one.



China is the planet's oldest 'continuous' culture, hence one with a profound richness in its particularity. It also a culture for 'insiders', built on *gemeinschaft* principles and in which personal contact, rather than arms-length institutions, remains crucial for successful navigation of socioeconomic and political life (Metzger 2001). Finally, as a modern nation-state, China is also based on a particular allegiance to the integrity of the *Chinese* nation. The cosmopolitan challenge is thus a crucial faultline in China's ongoing development project, just as the latter is the most important factor conditioning the former.

Yet this process also has significant implications for the global North, its conception of cosmopolitanism and theorization of the concept *per se*. For increasing Chinese presence in global networks also necessarily adds a new dimension that demands accommodation from, and hence challenges, existing conceptions of 'cosmopolitan' (and 'global') in some fundamental ways, not least as a non-European and developing country. The full inadequacy of attempts to understand (and engender) cosmopolitanism through abstract theorizing, employing the existing conceptual resources of Euro-American heritage, is thus laid bare. Instead, we see the mutual challenge of the hitherto hegemonic 'global' of the global North and Chinese modernity in the ongoing and concrete construction of the 'cosmopolitan'. But given the importance of reflexivity as the feature that distinguishes cosmopolitanism from premature universalism (i.e. at present, neoliberalism), detailed empirical study of this process, repudiating 'flat world' discourse (Friedman 2005), is a crucial element of its incubation as a social force.

These observations raise two issues. What are the prospects for a broader global cosmopolitan regime? And what types of innovation may arise given Chinese involvement? Our starting point is that, given the complexity of the social (or rather socio-ecological) systems of concern and even the weak link between cosmopolitanism and globalization, there are no simple solutions to the global problems that a cosmopolitan innovation regime may tackle. At best, we can outline various scenarios distinguishing amongst possible, probable and preferable futures, bearing in mind unintended consequences and the potential importance of random 'outlying' events that may render such forecasts incorrect (Taleb 2007).

Regarding possible futures we expect the growth of cosmopolitanism in China and of its uneven participation within innovation networks. First, there is considerable global openness and commitment to it. This will continue and encourage deeper international interaction so long as it does not threaten the CCP-led project of nation-state development. The challenging interaction with different cultures – and ones moreover that privilege competitive and critical thought – may encourage the central transformation in understanding of science and innovation towards a broader introduction of self-critical and reflexive consciousness that has remained relatively superficial, despite China's genuine attestations in favour of science throughout the modern era.

If, as is commonly predicted, global warming also manifests in dramatic, or even catastrophic, climate change in China (with the North facing drought and the South floods: Zhang et al. 2006), this may galvanize Chinese thought and practice and develop its commitment to 'global' actions.

There are many unknown variables involved in this: rapid Chinese social change; a political situation that systematically encourages nationalism, even to the extent that it may exceed the power of the state to contain it; a neoliberal global capitalist political economy undergoing extreme turbulence and the response of the USA to this, even under a new Obama administration; the processes of climate change and the global social response to it; and a growing set of other global risks (Beck 1999), such as financial crashes, pandemics, crime and terror, what has been termed 'global complexity' (Urry 2003).

With these many uncertainties intersecting with each other, it would be rash to suggest a single future. To the extent that China's political democratic transition remains 'trapped' (Pei 2005) any growth in a self-reflexive, civil society may increasingly oppose the Chinese political establishment. Such a transition need not be towards 'western-style' shallow parliamentary democracy and a vigorous internal debate is exploring alternative models (Leonard 2007). The ideological dependence of the CCP regime upon a chauvinistic nationalism (given the demise of communism as its central principle) could lead to cosmopolitanism being a crime against the state. As such, arguably the biggest domestic constraint to cosmopolitanism in China and its participation in cosmopolitan innovation is the slow pace of political reform. Indeed we should not presume any necessary movement to even shallow democracy with the spreading of 'capitalist' market relations (see Walby 2009, on 'degrees of democracy').

Finally as regards a preferable future, this would involve deepening the global connectedness of Chinese science and innovation and cosmopolitanism within Chinese society. This should be on the back of international mechanisms to encourage international collaboration in low-carbon innovation, a proto-cosmopolitan innovation regime that also demonstrates that the global North accepts primary responsibility for climate change. This points to the single biggest constraint from without, namely neoliberalism that has ruled the world over the past three decades.

By engendering commitment on the part of the Chinese, such a shift in context may enable tackling climate change before, rather than in reaction to, catastrophic weather events. And to the extent that this quantum leap in internationally co-operative innovation leads to radical mechanisms to effect a low-carbon systems transition, this may contain the whirlwind of global climate change (Stern 2007). The starting point of this must be concerted efforts to set up globally-wide mechanisms at the crucial post-Kyoto UNFCCC talks in Copenhagen in December 2009.

Indeed the possible demise of neoliberalism after this crash may give an unexpected upward shift in the conditions propitious for cosmopolitanism to spread as a social force, though it could also lead in the opposite direction with a resurgence of nationalism. Stern argues that a coming period of growth after the 2008 crash:

can be firmly based in the low-carbon infrastructure and investments that will not only be profitable, with the right policies, but also allow for a safer, cleaner and quieter economy and society. (Stern 2008)

And if a global reordering rebalances in China's favour, this may enable the cosmopolitan forces within contemporary China to become more effective in the post-crash context. A specifically Chinese cosmopolitanism could gain momentum and just possibly might provide some of the conditions necessary for a low-carbon future to emerge. And according to Stern such low-carbon innovation and growth is utterly essential both environmentally and economically. Without China on board, what Stern refers to as the greatest of market failures may otherwise wreak much devastation and some very bleak futures (2007; Dennis and Urry 2009). The stakes would seem high indeed for ensuring that cosmopolitan innovation takes root very soon.

(Date accepted: August 2009)

Notes

1. This ESRC/AIM project on low-carbon cosmopolitan innovation in China involves extensive interviews with UK and Chinese scientists and researchers within the domains of agriculture, energy and mobility. Many interviews have been conducted in laboratories and research sites within China. Other members of this team are Brian Wynne, James Wilsdon and James Keeley.

2. Chinese language has developed no equivalent for 'cosmopolitanism' that connotes the tension between *cosmos* and *polis*.

3. Or, as dissident Professor Fang Lizhi provocatively put it in the 1980s, 'western essence, Chinese means' (*zhongyong, xiti*) (Harrison 2001).

4. Though see Ong (1999) for a discussion of diasporic Chinese sentiment that retains little nationalistic sentiment.

5. Even in the case of the Chinese diaspora, this is tied up with the confrontation with western modernity. It was the

imperial free-trade economy that first propelled this emigration and the continued or renewed affiliation with the 'motherland' in diaspora Chinese, as in the construction of narratives of Confucian capitalism, is itself a reaction and self-definition in contradistinction to the West. See Ong (1997) and Pan (1994). More generally here see Beck and Grande (2007).

6. See [http://news.xinhuanet.com/english/2008-08/06/content\\_8994009.htm](http://news.xinhuanet.com/english/2008-08/06/content_8994009.htm) (accessed 03.11.08).

7. These developments have moved Tim Berners-Lee, the inventor of the HTML mark-up language, to express concerns (Ghosh 2008).

8. This is not a full-scale analysis of an innovation regime but an analysis of some pertinent trends.

9. See Harrison (2001) on the importance of 'science' in Government discourse in the 1980s and '90s.

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