



# The political economy of Chinese environmental protection: lessons of the Mao and Deng years

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**ABSTRACT** *Despite the very different policies, structures and rhetoric associated with the Mao and Deng years, environmental outcomes for China were depressingly similar. Neither the political economy of command under Mao Zedong nor the more market-based political economy under Deng Xiaoping adequately came to terms with the problems of environmental pollution and degradation, to the extent that many observers, both inside and outside China, argue that the current state of the natural environment—the legacy of those years—is so parlous as to threaten future material advance. This article compares and contrasts environmental protection under the two regimes, draws out lessons for the current administration of China, and specifically argues that while the market-based reforms begun under Deng Xiaoping have delivered fast rates of economic growth, it is important to recognise that recent well-meaning policies to encourage environmental protection are put at a discount unless the threats to the environment of increasing market liberalisation are faced.*

Mao Zedong announced the birth of the Peoples Republic of China from the Gate of Heavenly Peace on 1 October 1949. Although ruled exclusively since then by one political party, the Chinese Communist Party (CCP), the Chinese have experienced uniquely turbulent social change as battles fought between warring factions within the hierarchy of the CCP have manifested themselves in a series of violent policy changes with far-reaching impacts on the Chinese people. Despite the frequency of change in the forms and outcomes of the Chinese political economy in the past 50 years, however, it is nonetheless possible to divide the period into two roughly equal halves: the first, from 1949 to 1976, representing the years of the leadership of Mao Zedong and the second, from the late 1970s to his death in 1997, the years of Deng Xiaoping.

Despite their shared experiences as fellow Long Marchers and early Communist revolutionaries, Mao and Deng held very different perspectives as to the correct manner of translating socialist theory into political practice. In the early years Mao held sway (to the extent that Deng was periodically exiled from power) and his rule was characterised by the political economy of command, charismatic leadership, continuous revolution and the supremacy of politics over economics. Only after Mao's death did Deng wrest control of the levers of power, culminating in the historic decisions made in 1978 and the beginnings of

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a political economy—although still characterised by strong, autocratic and frequently ruthless government—in which the role of markets in determining social outcomes was dramatically expanded.

### **The environment and its protection in the years of Mao Zedong**

#### *Mao's political economy*

In 1949 China had a population of 542 m,<sup>1</sup> almost all of whom lived in the countryside, the great majority being landless peasants living, given the physical geography of China, on one-sixth of the total land area, in the centre, northeast and east of the country. During the Anti-Japanese and Civil Wars, Mao had promised them change and, on 'liberation' in 1949, change is what they got. Land reform in the early 1950s led to the expropriation of the landlords (as well as to a large number of their deaths<sup>2</sup>) and to the redistribution of land to the peasants. The mid-1950s saw growing collectivisation of that land and the decade ended with Mao's exhortation to make a 'Great Leap Forward' in industrial production, involving not merely calls to the peasants to make steel in backyard furnaces but drives to amalgamate their now collectivised farms into huge rural communes with centralised accounting and work organisation.<sup>3</sup>

Much has been written elsewhere on the aftermath of the Great Leap Forward.<sup>4</sup> Suffice it to say that few observers would disagree that the process was a tragic misnomer, representing one of the greatest leaps backwards in human history and a monument to development of an unsustainable nature. While there were increases in the per capita production of some heavy industrial goods between 1957 and 1962, including coal, oil and steel, these were matched by *falls* in the output of other industrial commodities, such as yarn, cloth and cement and *catastrophic falls* in the output of every major agricultural commodity. Per capita grain output, for example, fell from 306 kg in 1957 to 240 kg in 1962, a drop of over 20%.<sup>5</sup> The flagrant misuse of scarce (capital, human and environmental) resources in producing worthless steel, and the over- and/or misreporting of production levels, combined with a couple of bad winters in the early 1960s to produce a demographic disaster of frightening proportions, with up to 30 million rural Chinese dying of starvation.<sup>6</sup>

The Great Leap Forward was abandoned in 1961 but Mao's commandism was not in the shade for long and in 1966 he launched the 'Great Proletarian Cultural Revolution', involving, above all, a reassertion of the primacy of politics over economics and of continuous revolution based upon class struggle and on the politics and persona of Mao himself. In the countryside private plots were collectivised, side-line activity eliminated, free markets restricted, remuneration via work-points introduced and production put in the hands of 'revolutionary committees' who frequently subjected their erstwhile leaders to violent criticism and worse. Although its more vicious aspects had died down by the end of the 1960s, the Cultural Revolution was not officially brought to an end until Mao's death in 1976.

Despite degrees of real power decentralised from Beijing, central government policy had an all-pervasive influence throughout the Chinese political economy.

Every Chinese was a member of a work unit or *danwei* which determined not only the nature of the work to which he or she was assigned but his/her remuneration, living accommodation, education, medical and other services, entertainment and general sense of social being. The fact that every *danwei* maintained a party branch and that most party committees, and in particular the party secretary, or *shuji*, ruled them (even if popularly) with a rod of iron, meant that the will of the central hierarchy could be translated into practice in the fields, on the shop floor, in the streets, with almost effortless ease. In Mao's China, the public domain held absolute sway over the private, the collective over the individual, political command over the vagaries of markets. Indeed, in Mao's China, it is difficult to recognise the existence of 'markets' (as arenas wherein buyers and sellers voluntarily interact) at all.

### *Mao's environmental legacy*

The years of Mao Zedong were not friendly to China's natural environment. A clean and undegraded environment is, for economists, an example of a 'public good' ideally produced (or at least, capable of being produced) in a command economy. But in Mao's command economy, the overweening imperative of creating a strong, socialist and independent China through heavy industrial expansion and human intervention made it impossible to do this.

It was not just that Mao prioritised heavy industrial production and energy generation with all the attendant costs to clean air and water which led to pollution and environmental degradation. In the countryside, Mao's exhortations to 'take grain as the key link'<sup>7</sup> led to intensive grain monoculture based on increasingly large amounts of chemical fertilisers,<sup>8</sup> with many resulting environmental hazards such as the leeching of nitrates into groundwater and runoff into streams and surface water, the eutrophication of lakes and the hardening or crusting of soil. The use of chemical pesticides increased as well, posing severe environmental problems, including toxicity to the humans directly involved in their application, toxic residues in water, soil and food and the increased resistance of pests to pesticides.<sup>9</sup>

Meanwhile Mao's belief in the possibility and desirability of humankind dominating nature (as opposed to the traditional Daoist notion of humans working in harmony with it<sup>10</sup>) led simultaneously to unsustainably fast rates of population growth over the period (despite the demographic disaster of the early 1960s, the population at the time of Mao's death had risen to 925 million,<sup>11</sup> ie an increase of 384 million—71%—in a quarter of a century) and to attacks on the natural environment as scarce water was polluted or wasted, wildlife (even sparrows) killed and forests cut down. The latter process led to loss of soil protection and enrichment, changes in local micro-climates, the disruption of upland watersheds and their attendant ecosystems and increases in the severity of floods and drought.

On the plus side, the concept of 'environmental hygiene', borrowed from the Soviet Union, was developed in the 1950s in response to the need to improve the lot of the urban population and the provision of clean water was promoted. By the time the First Five Year Plan was introduced in 1953, the environmental

impact of industrial production was recognised to the extent that the plan advocated the recycling of industrial waste-water. And in 1956, in response to evident air and water pollution, new legislation was enacted to improve the health of the urban population by ruling that industrial facilities should not be sited upstream of major population centres and calling for the promotion of emission-abatement technologies.<sup>12</sup>

Legislation barely touched the rural environment for most of the Mao years, although the enforced collectivisation there made it easier to mobilise gangs of peasants to construct, defend or repair 'public goods' such as dams, reservoirs or irrigation schemes which had positive environmental impacts. (Unfortunately, it was also easier to mobilise the same gangs to chop down trees to provide firewood for stoves and backyard blast furnaces, as happened during the Great Leap Forward, with obvious attendant environmental costs.)

Also on the plus side, by the early 1970s and with the Cultural Revolution officially ongoing, there was a noticeable change of attitude towards the environment. Perhaps influenced by the 'Limits to Growth' debate in the West,<sup>13</sup> ecology became a political topic and the concept of 'environmental hygiene' was replaced with the concept of 'environmental protection'.<sup>14</sup> That China was a participant at the first United Nations Conference on the Human Environment in Stockholm in 1972 was an illustration of this turn of mood and with the advocacy of Premier Zhou Enlai the government used that conference as the springboard for the development of its domestic environmental policy, convening the first National Environment Conference in 1973 in Beijing. At that conference guidelines were drawn up on environmental policy and environmental protection and research for the first time and, in 1974, the Environmental Protection Leading Group of the State Council was formed. Thus, by the time of Mao's death at the end of 1976, the early institutional foundations for China's environmental protection had been laid.

Despite some credits, however, the environmental balance sheet was deeply in the red during the Mao years. In Mao's defence it must be remembered that, in the 1950s and 1960s, concern for the natural environment and concepts of environmental protection were hardly flourishing even in economically rich countries. But to the extent that Mao presided over a political economy which prioritised the collective over the individual and the public over the private yet was so careless in maintaining the 'public good' of a clean and undegraded environment, the environmental legacy of his years in high office is a pretty sorry one. Thus when Vaclav Smil published *The Bad Earth*,<sup>15</sup> his seminal work on the state of the Chinese environment in 1984, describing for the most part the legacy of the Maoist years, he catalogued a litany of just about every possible form of environmental pollution and degradation going, concluding that:

the magnitude of China's accumulated environmental problems is depressing ... the potential for further accelerated environmental degradation is quite considerable.<sup>16</sup>

### **The environment and its protection in the years of Deng Xiaoping**

#### *Deng's political economy*

After Mao's death it did not take long for Deng Xiaoping to assume supreme

power and, by December 1978, at the Third Plenum of the 11th Central Party Committee in Beijing, he was in a sufficiently powerful position to push through measures of a very different nature from those associated with Mao and the ultra-leftist 'Gang of Four'.<sup>17</sup> Deng's favoured policies involved a shift of state investment from heavy into light industry and agriculture, planning based to a greater extent on prices, using relative price differentials to encourage farmers to plant more lucrative crops suited to local conditions, the reintroduction of private plots and the abolition of many of the restrictions on sideline activities. These policies led most radically in the countryside to the break-up of the communes and the introduction of the Household Responsibility System, whereby individual peasant households were responsible for fulfilling state contracts at agreed procurement prices and, once having done so, were free to sell any above-quota output in newly established local markets for whatever prices they could get. To all intents and purposes, privatised family farming was reintroduced.

Throughout the Deng years, progressively greater emphasis was put on internal market forces. Nevertheless, wholesale privatisation of industry did not take place and for many years after his succession to the leadership, Deng kept most of the gigantic industrial enterprises established under Mao, however unprofitable, under state control (commonly referred to as state-owned enterprises or SOEs). In Deng's 'socialist market economy' administered prices were still common and wholly free prices the exception rather than the rule. Thus, China's structural reform under Deng was a gradual one, with markets encouraged selectively and pragmatically and enterprises overwhelmingly run in the collective rather than the private interest.

At the same time, the Chinese government maintained almost absolute political power. In the terminology of the Soviet Union's structural reform, *perestroika* may well have begun but there was precious little *glasnost*. Five Year Plans remained the cornerstone of economic policy and the *danwei* remained an important social form, as did Party committees and secretaries, both in the town and the countryside, in communicating and executing central government policy. The ruthlessness with which the demonstrations in Tiananmen Square in June 1989 were put down made clear the government's lack of sympathy with pluralist political forms. To describe Deng's China as a 'mixed political economy' does not imply that it resembled the traditionally so-labelled economies in Western Europe or North America, only that, in comparison with the Mao years, an expanded role for markets existed in the consumption and production processes.

The results of the Mao and Deng years had very different implications for material standards of living in China. While the earlier period left the average Chinese peasant materially poor, despite significant improvements made to the social infrastructure, the years after 1979 were years of economic growth (measured in terms of real GNP per head) of heroic proportions. Indeed, the Chinese political economy achieved the astonishing feat of *quadrupling* real output per head between 1980 and 1995.<sup>18</sup> In the early 1980s the slogan '*wenbao*' (meaning to have warm clothes and be able to eat one's fill) was replaced by the concept of '*xiaokang*' (small wealth, ie 'comparatively well-off') as the desirable state-of-affairs by the year 2000.<sup>19</sup> But '*xiaokang*' was already

the felt experience for the vast majority of Chinese, in the countryside as well as the town, by the early to mid-1990s.

### *Deng's environmental legacy*

A welter of official activity and policy pronouncements with regard to environmental protection characterise the years of Deng Xiaoping. In 1979 China enacted, on a trial basis, the first Environmental Protection Law of the PRC; in 1982 environmental protection became part of the Constitution of the PRC as Article 26—‘the state protects and improves the environment in which people live and the ecological environment. It prevents and controls pollution and other public hazards’<sup>20</sup>—was enacted and encoded into the Constitution; and in 1983 the then Vice-Premier Li Peng used the Second National Conference on the Environment to declare environmental protection, alongside family planning, ‘a fundamental state policy’. According to Qu Geping the period was ‘a golden age for the development of environmental protection’.<sup>21</sup> In 1982 the state set up the Ministry of Urban and Rural Construction and Environmental Protection with the Environmental Protection Administration beneath it. In 1987 the latter was elevated from being an office of the Ministry to an agency directly under the State Council, giving it cabinet level status, while its name was changed to the National Environmental Protection Agency (NEPA) with Qu Geping, ‘the father of Chinese environmental protection’,<sup>22</sup> as its chief and given ultimate responsibility for overall supervision and administration of all environmental protection work in China. In 1989 this period culminated with the promulgation of the final and comprehensive version of the Environmental Protection Law, exactly 10 years after its initial trial implementation. As Jahiel notes, ‘the first decade of reform ushered in a vast expansion of environmental protection institutions, laws and policies’.<sup>23</sup>

By 1990 environmental protection policies were based on the three principles of ‘putting protection first and combining prevention with control’, ‘making the causer of pollution responsible for treating it’ and ‘intensifying environmental management’.<sup>24</sup> There was a pollutant discharge permits system, and local environmental protection bureaux had the power to collect fees and levy fines for excessive discharge of pollutants, the funds so collected to be used for pollution control, and in extreme cases to order the closure of a heavily polluting work-unit. Environmental impact assessments were encouraged for all major construction projects, responsibility systems for environmental protection devised and environmental monitoring strengthened.<sup>25</sup>

In the early 1990s the status of environmental protection was further consolidated and strengthened. In 1992 China took a full part in the UN Conference on Environment and Development (‘the Earth Summit’) in Rio de Janeiro, with then Premier Li Peng leading the delegation, and in 1993 a special Environment and Resources Protection Committee of the National People’s Congress was established, headed by Qu Geping, while State Councillor Song Jian was given a formal environmental protection portfolio for the first time. In 1994 the Chinese government promulgated China’s Agenda 21—its response to the Earth Summit—and in 1996 it adopted in the Ninth Five Year Plan firm commitments

to 'sustainable development as an important strategy for modernization'.<sup>26</sup> Thus by 1996 China had set up a far-reaching network of 8400 environmental agencies,<sup>27</sup> bureaux and offices at a variety of administrative levels, from province through city, county and township, employing a total staff of 96 000 people,<sup>28</sup> and had drafted an array of (on paper) tough regulations concerning environmental protection.

During the Deng years, the official attitude towards family planning and population control changed radically. While Mao had been in favour of large increases in the Chinese population, Deng's government adopted the harshest official policy of family limitation since Herod: with few exceptions families were limited to having one child only, a policy enforced through exhortation, forced abortions and stringent penalties for transgressors. The population continued to rise fast because the age distribution was bizarrely skewed towards youthful middle-age (largely because of the Maoist population drive of the previous period). Nonetheless, the one-child policy was highly successful in reducing the rate of growth of population from what it would otherwise have been.

But despite the flurry of government activity throughout the years of the Dengs' leadership and the 'success' of family planning policy, the Chinese environment was more polluted and degraded at its end than at its beginning. Although Smil's *The Bad Earth* of 1984 catalogued a litany of environmental problems in China, the same author's enquiry into the state of the China environment a decade later was no more optimistic, concluding that:

China's deteriorating environment is already a major retarding factor in the country's quest for modernisation. The prospects for the 1990's, indeed at least for the next generation, is for further decline that may find global repercussions in fostering the country's instability and turning it into the planet's leading environmental transgressor.<sup>29</sup>

Deng's government inherited a natural environment in such a sorry state that it would have been impossible to have turned it round overnight but, in all too many respects, the position deteriorated. Environmentalists will often prioritise deforestation as a cause of environmental degradation because of the wide-ranging negative impacts it can have. While, since 1978, China claimed to have 'implemented massive ecological afforestation engineering projects',<sup>30</sup> in 1991 the figure for forest cover was only 13%, well below the world average of 31%,<sup>31</sup> and the situation was handicapped in the late 1980s and 1990s, despite the official afforestation programmes and enactment of legislation (such as the Basic Forest Law of 1985) by 'massive illegal logging',<sup>32</sup> 'enormous fraud and waste',<sup>33</sup> 'inadequate prevention of forest fires and poor fire-fighting facilities',<sup>34</sup> and 'false reporting, ineptitude ... bad management, theft and blatant looting'.<sup>35</sup> According to Smil, the areas of forest decreased by as much as 12.8 million hectares (about 10%) during the 1980s.<sup>36</sup>

Plenty of evidence exists that by the late 1990s environmental problems in China included widespread and acute soil erosion, desertification and salinisation, water pollution, noise and solid waste pollution, atmospheric pollution of a variety of forms, including acid rain, serious water shortages and loss of

biodiversity, and that, on just about every environmental parameter, the situation had worsened in the two decades after 1979. Although improvements in some areas took place during the latter part of the Deng years, notably in the proportions of industrial waste-water treated (up from 63.5% to 81.6% between 1991 and 1996<sup>37</sup>), in the proportions of that water brought up to standards of discharge (from 50.1% to 59.1%<sup>38</sup>), of industrial dust recovered, of industrial solid waste recycled and SO<sub>2</sub> per unit of GDP emitted, the data reveal a 'mixed record of environmental achievement',<sup>39</sup> with higher *absolute* levels of almost all emissions. In 1992 NEPA identified several key 'ecological-environmental problems':<sup>40</sup> the continuing overburdening of land resources, grassland degradation, the fragility of forest resources, water shortages, marine pollution and degradation, the loss of species diversity, air pollution caused by coal-burning, industrial pollution and urban environmental strain. Indeed, there is currently a considerable literature written by Chinese as well as Western scholars describing the baleful state of the Chinese environment, a state so polluted and degraded as to threaten future material advance.<sup>41</sup>

### **The environmental legacies of Mao and Deng compared: some conclusions concerning the role of markets**

The political economy of command under Mao Zedong served the natural environment badly and it is not surprising that many scholars, particularly those working within alternative ideological traditions, blamed the very nature of the political-economic process for this state-of-affairs. In *The Bad Earth*, Vaclav Smil (unsurprisingly given his early socialisation in the Soviet satellite state of Czechoslovakia), no friend of authoritarian regimes, blamed the 'complex and uncoordinated bureaucracies ... the absence of essential infrastructures, the profound economic mismanagement and inefficiencies' of the Chinese government for the state-of-affairs up to the early 1980s,<sup>42</sup> while He Baochan, discussing China's environmental crisis from inside China in 1991, was similarly condemnatory of China's political-economic structures,<sup>43</sup> and largely concurred with the view of Lester Ross, who argued in an optimistic vein in 1988 that 'markets have a considerable potential to enhance the environment that has only recently been recognised by China's leaders'.<sup>44</sup>

In that markets *have* played an increasing role in China's economic development in the last 20 years, while the Chinese environment has continued to deteriorate, however—and this despite a government more aware of the importance of environmental protection (and hence the enactment of significant environmental legislation and establishment of appropriate institutions), a policy-induced slowdown in the rate of population growth and a materially richer political economy—suggests that there is a good case for arguing that the situation is more complex than Ross would have us believe.

Free market-orientated critics of Mao's regime, in explaining Deng's lack of success in cleaning up the environment, would perhaps suggest that market forces, though expanded in the Deng years, did not expand *enough*. These critics may well advocate the need for more 'market-based' solutions to environmental problems (rather than policies of 'command-and-control'), such as the progress-



ive taxing of emissions to 'make the polluters pay' the full cost of their output (thereby internalising the external costs of pollution and degradation), the establishment of markets in tradeable permits to pollute and the entrenchment of private ownership over environmental resources to prevent the 'tragedy of the commons'.<sup>45</sup> It is certainly the case that Deng's regime did not go far down that road. Fines to make the polluter pay became part of the overall strategy to reduce pollution, but they were (and still are) inconsistently applied and enforced, and where they were enforced, were often set so low as to have no disincentive effects whatsoever. Private ownership lagged behind communal ownership and markets for tradeable permits to pollute did not move from the free-marketeers' textbooks.

But the experience of the years of Deng Xiaoping expose very serious weaknesses in the above case. Indeed, the evidence points strongly to its counter-argument: that, in fact, what advances *were* made in terms of environmental research, monitoring and protection were achieved as a result of traditional 'command-and-control' policies, and that their successes were limited or negated by the drives towards liberalising markets and privatisation which occurred at the same time.

The sheer pace of industrialisation that took place during the Deng years, combined with liberalisation and the promotion of the view that 'to get rich was glorious'<sup>46</sup> meant that environmental legislation and the structures and institutions it established to reduce levels of environmental pollution and degradation had little chance to make headway. Greater concentrations of suspended particulate matter and acid rain in the atmosphere in the cities, water shortages and the increasingly polluted nature of what water was left were, for most Chinese, accepted as the necessary *quid pro quo*, a price worth paying for the material comforts they were increasingly enjoying. Environment protection bureaux, meanwhile, even when armed with appropriate legislation, for the most part *lacked the political power* to match the imperatives of the market. Jahiel's researches, for example, suggest that there was great resistance among enterprise owners and village leaders eager to invest in profit-making ventures to pay the discharge fees which were legally due, viewing them 'as a waste of money'.<sup>47</sup> On the other hand, empirical evidence suggests that where the state *was* able to exert, through internal procedures, some degree of effective regulatory control, a more satisfactory outcome prevailed. Roselle's research into urban industrial waste-water control, for example, demonstrated a significant, positive statistical correlation between measures of success in waste-water control and the share of output arising from state-owned industries.<sup>48</sup>

The backbone for China's huge industrial growth in the 1980s and early 1990s was the dramatic increase in the output of the township-and-village enterprises (TVEs) in rural China,<sup>49</sup> newly liberated by market imperatives yet (unsurprisingly) often highly polluting, villagers showing little hesitation in running chemical works or paper factories or brickworks if they could make a profit, whatever their impact on the local environment. Furthermore, the profitability of the TVEs damaged the rural environment by leading to a marked deterioration in the position of the farm sector relative to other sectors. As farmers—where they could—deserted the land to make money in the rural factories, the profitability

of the land was only maintained by *increasing* the already large inputs of chemicals. Throughout the Deng years the application of chemical fertilisers continued to grow at breathtaking speed,<sup>50</sup> as did the application of chemical pesticides. Both processes had predictable environmental implications.

Deforestation accelerated during the 1980s despite the Basic Forestry Law of 1985, the result according to Edmonds of illegal logging 'expanded since the arrival of the market economy'.<sup>51</sup> China's lack of success in halting deforestation in the 1980s also related directly to the 'privatisation' of trees. The abandonment of the communes and the establishment of the Household Responsibility System in the early 1980s was accompanied by the distribution of collective property, including trees, to individual households. Households overwhelmingly responded by cutting them down for firewood or for construction and growing marketable crops on the deforested land. Pu Maosen, official of the Environmental Protection Bureau in Simao County, Yunnan Province, told me that in Simao the reforms provoked 'a level of deforestation not seen since the Great Leap Forward' as trees were chopped down for firewood, construction or sale by households who grew crops instead, even on slopes, yet with unimpressive success and with mounting soil erosion and other associated environmental costs.<sup>52</sup> The degenerative process in Simao was only halted in 1988 when the county *gave orders* to every village collectively and thereby every household individually to replant trees. Evidence from my research into environmental protection in Chinese villages in nine provinces between 1992 and 1997 suggests that, throughout the Chinese countryside, similar sorts of processes involving the effective running down of environmental resources to sustain economic advance, took place subsequent to the reforms.<sup>53</sup> Based upon fieldwork primarily in Heilongjiang, Muldavin referred to the process as 'the mining of ecological capital',<sup>54</sup> a process colourfully described by Hinton, based on his 50-odd years in the Chinese countryside, in the following terms:

[Deng's] reform unleashed ... a wholesale attack on an already much-abused and enervated environment, on mountain slopes, on trees, on water resources, on grasslands, on fishing grounds, on wildlife, on minerals underground on anything that could be cut down, plowed up, pumped over, dug out, shot dead or carried away.<sup>55</sup>

The problems for the rural environment of this privatisation were compounded, moreover, because the break-up of the collectives meant that it became that much more difficult for village leaders to mobilise large gangs of villagers to build dams or ditches or engage in reforestation or repair roads, to build up any kind of 'communal capital'<sup>56</sup> or, indeed, to deal collectively with environmental damage from whatever source. The collapse of the communes threatened successful biogas development<sup>57</sup> and integrated pest management.<sup>58</sup> It is hardly surprising that even the most cursory of observations in the Chinese countryside in the mid-1990s testified to an alarming deterioration of the natural environment.

Thus, despite the ever increasing seriousness with which environmental problems were tackled and the ever larger state budgets given over to environmental protection during the Deng years, environmental problems for the most

part became more entrenched. It is the argument of this paper that this was the case primarily because, during those same years, markets were liberalised too much and too fast rather than too little and too slowly. That is not to suggest that it was wrong for liberalisation to have taken place. During that process, a very substantial proportion of the world's population (22% of whom live in China) moved out of a precarious existence dominated by abject poverty into a world of '*xiaokang*'. Nor is it an argument for abandoning liberalisation *en bloc*, nor for a return to a more authoritarian political economy. But it *is* an argument for reinforcing the perhaps obvious point that liberalisation was not costless and that to deal with the increasingly precarious ecological environment in which China now finds itself, an environment generally agreed to be so damaged as to threaten future material advance, it is necessary to go beyond the mantra of increasing market flexibility and property rights.

The Deng years, despite delivering a five-fold increase in real material incomes, saw environmental standards fall inexorably. That life expectancy in China has begun to *decline* in recent years,<sup>59</sup> while human-induced natural disasters (eg the widespread flooding of the Yangtse in 1991, 1996 and 1998, the Huai He disaster in 1994<sup>60</sup>) have been occurring on an ever more regular basis, illustrates the seriousness and urgency of China's environmental predicament. Jiang Zemin seemed to recognise the dangers when he argued in 1997:

overuse of natural resources will make it hard to protect the ecological environment and improve the quality of the environment. If the work is not done well, the environment will be polluted and damaged. This will have a direct impact on people's health and living conditions and will even endanger the survival and development of our descendants.<sup>61</sup>

### The future

The administration of environmental protection has already begun to change under the leadership of President Jiang Zemin and Premier Zhu Rongji. At the Ninth National People's Congress in March 1998, and despite a general paring down of the size and role of Chinese bureaucracy, the State Environmental Protection Administration (SEPA, replacing NEPA) was promoted to full ministerial status and given enhanced powers of coordination over environmental issues at government levels, reflecting the new regime's concern for the increasingly precarious condition of the natural environment in China. However, *at the same time*, its staffing was reduced (from 300 to 200 employees<sup>62</sup>) in the general trend towards official retrenchment, its powers of coordination remain limited, and it is required to work in a political-economic environment within which the achievement of fast rates of economic growth (narrowly defined in per capita GDP terms—the 1998 target was 8%, and was, at 7.8% all but achieved<sup>63</sup>) remains the dominant objective, where *private* rather than social forms within the industrial sector continue to be encouraged, where the role of markets and prices as arbiters of resource allocation continue to be emphasised,<sup>64</sup> where rampant consumerism remains the order of the day and where political power is,

*de facto*, being increasingly wielded outside Beijing in provinces and counties in the south and east made rich during the Deng years.

Many scholars view the present situation not entirely without optimism. For Edmonds 'there are some optimistic signs',<sup>65</sup> for Lotspeich and Chen, 'the Chinese leadership seems intent on improving environmental performance',<sup>66</sup> and for Jahiel 'the more optimistic forecast suggests that the recent changes made at the Ninth NPC reflect the fact that the environmental situation in China is already so severe that major changes are in the offing'.<sup>67</sup>

But increasing marketisation and expansion of property rights in China are not likely to be among those changes which will improve the situation. Indeed, on the contrary, any significant improvement should involve, at the national level, the spending by the state of a *greater* proportion of GDP on environmental protection (and improving its staffing levels), providing SEPA with *more* powers of coordination and regulatory jurisdiction (for example over oceanic pollution) and giving it greater influence over economic decision making (for example over the energy profile of the country) and over the general economic direction of China.<sup>68</sup> At the local level, it should involve the encouragement of more *social, communal* forms of production, whether primary, secondary or tertiary, allowing the mining of 'communal capital' to be put into reverse. It is clear that, while many Western observers encourage Jiang Zemin and Zhu Rongji towards ever faster market-based reforms, there is considerable evidence from across China that, with regard to the ongoing curses of environmental degradation and pollution, the market-based reforms of the 1980s and 1990s contributed more to the problem than to the solution.

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## Notes

<sup>1</sup> *China Statistical Yearbook*, Beijing: China Statistical Publishing House, 1998, p 105.

<sup>2</sup> See B Brugger & S Reglar, *Politics, Economy and Society in Contemporary China*, London: Macmillan, 1994. The authors suggest (p 96) that between 400 000 and 800 000 landlords lost their lives, one in six landlord families.

<sup>3</sup> On 13 November 1957, the Chinese *People's Daily* published an editorial entitled 'Start a new upsurge in agricultural production calling on people to make "a Great Leap Forward" on the production front'. This was the first time that the slogan 'Great Leap Forward' emerged, one to be repeated many times in the following year as Mao determined that China should catch up with the UK, then the second largest producer of steel in the world, within 15 years.

<sup>4</sup> For a powerful account of the felt experience of the impact of the Great Leap Forward, see Jung Chang, *Wild Swans*, London: Flamingo, 1993, ch 12.

<sup>5</sup> *China Statistical Yearbook*, Beijing: China Statistical Publishing House, 1998, p 37.

<sup>6</sup> Peter Nolan, *The Political Economy of Collective Farms*, Cambridge: Polity Press, p 49.

<sup>7</sup> William Hinton, *The Great Reversal 1978-89*, New York: Monthly Review Press, 1990, p 25.

<sup>8</sup> *China Statistical Yearbook*, 1992, p 312. The consumption of chemical fertiliser rose from 78 000 tons in 1952 to 8 840 000 tons in 1978.

<sup>9</sup> For a full account of the dangers of chemical pesticides see Rachel Carson, *Silent Spring*, London: Hamish Hamilton, 1963.

<sup>10</sup> C Catton, *Tears of the Dragon, China's Environmental Crisis*, London: Broadcasting Support Services, Channel Four Television, 1992, p 9.

<sup>11</sup> *China Statistical Yearbook*, 1997, p 69.

<sup>12</sup> B Glaier, 'The environmental impact of economic development', in T Cannon (ed), *The Geography of Contemporary China: The Impact of Deng Xiaoping's Decade*, London: Routledge, 1990, p 253.

<sup>13</sup> The major contributors to that debate were D Meadows, J Randers & W Rehrns, *The Limits to Growth*,

- New York: Universe Books, 1972. The debate centred around the prospect of resource depletion consequent upon economic growth.
- <sup>14</sup> Glaiser, *The Environmental Impact of Economic Development*, p 250.
- <sup>15</sup> Vaclav Smil, *The Bad Earth*, New York: ME Sharpe, 1984.
- <sup>16</sup> *Ibid*, p 198.
- <sup>17</sup> 'The Gang of Four' was a term used to refer Jiang Qing, Zhang Chunqiao, Yao Wenjuan and Wang Hongwen, a group of so-called 'ultra-leftist' CP leaders who were arrested and imprisoned after Mao's death in 1976 and who have been subsequently blamed for many of the traumas associated with the Cultural Revolution.
- <sup>18</sup> Smil, *The Bad Earth*.
- <sup>19</sup> Jurgen Delman, 'Projecting agriculture towards the year 2000: projecting the unprojectable', in J Delman *et al* (eds), *Remaking Peasant China*, Aarhus: Aarhus University Press, 1990, p 42.
- <sup>20</sup> *Constitution of the People's Republic of China*, Beijing: Foreign Languages Press, 1988, p 22.
- <sup>21</sup> Qu Geping, *Environmental Management in China*, Beijing: China Environmental Science Press, 1991, p 226.
- <sup>22</sup> Glaiser, *The Environmental Impact of Economic Development*, p 253.
- <sup>23</sup> Abigail Jahiel, 'The contradictory impact of reform on environmental protection in China', *China Quarterly*, 149, 1997, p 81.
- <sup>24</sup> State Council, *Environmental Protection in China*, Beijing: Information Office of the State Council of the PRC, 1996, p 13.
- <sup>25</sup> NEPA, *National Report of the PRC on Environment and Development*, submission to the UN Conference on Environment and Development in Rio De Janeiro (China Environmental Science Press, 1992), pp 52–54.
- <sup>26</sup> State Council, *Environmental Protection in China*, p 6.
- <sup>27</sup> *China Statistical Yearbook*, 1997, p 757.
- <sup>28</sup> *Ibid*, p 757.
- <sup>29</sup> Vaclav Smil, *China's Environmental Crisis: An Inquiry into the Limits of National Development*, London: ME Sharpe, 1993, p 201.
- <sup>30</sup> NEPA, *National Report of the PRC on Environment and Development*, p 23.
- <sup>31</sup> Richard Louis Edmonds, 'China's environment: problems and prospects', in D Dwyer (ed), *China: the Next Decades*, Harlow: Longman, 1994, p 158.
- <sup>32</sup> *Ibid*, p 159.
- <sup>33</sup> Smil, *China's Environmental Crisis*, p 59.
- <sup>34</sup> *Ibid*, p 62.
- <sup>35</sup> He Baochan, *China on the Edge: The Crisis of Ecology and the Environment*, San Francisco, CA: China Books and Periodicals, 1991, p 27.
- <sup>36</sup> Vaclav Smil, 'China's environment in the 1980s: some critical changes', *Ambio*, 21(6), 1992, p 435.
- <sup>37</sup> *China Statistical Yearbook*, 1997, p 758.
- <sup>38</sup> *Ibid*.
- <sup>39</sup> Richard Lotspeich & Aimin Chen, 'Environmental protection in the People's Republic of China', *Journal of Contemporary China*, 6(14), 1997, p 55.
- <sup>40</sup> NEPA, *National Report of the PRC on Environment and Development*, pp 31–34.
- <sup>41</sup> See Smil, *The Bad Earth*; Smil, 'Land degradation in China: an ancient problem getting worse', in P Blaikie & H Brookfield (eds), *Land Degradation and Society*, London: Methuen, 1987; Smil, 'China's environment in the 1980s', pp 431–436; Smil, *China's Environmental Crisis*; He Baochan, *China on the Edge*; Eduard Vermeer, 'Management of environmental pollution in China: problems and abatement policies', *China Information*, 5(1), 1990, pp 34–55; Vermeer, 'An inventory of losses due to environmental pollution: problems in the sustainability of China's economic growth', *China Information*, 10(1), 1995, pp 19–50; and R Smith, 'Creative destruction: capitalist development and China's environment', *New Left Review*, 222, 1997, pp 3–40.
- <sup>42</sup> Smil, *The Bad Earth*, p 199.
- <sup>43</sup> See He Baochan, *China on the Edge*.
- <sup>44</sup> Lester Ross, *Environmental Policy in China*, Indiana: Indiana University Press, 1988, p 1.
- <sup>45</sup> See Garret Harding, 'The tragedy of the commons', reprinted in H Daly (ed), *Economics, Ecology, Ethics: Essays Towards a Steady-State Economy*, San Francisco: Freeman, 1980 (first printed in *Science*, 162, 1968, pp 1234–1248).
- <sup>46</sup> 'To get rich is glorious' became a common slogan popularised in the Deng years. It was designed to counter the anti-incentivist 'iron ricebowl' mentality of the Mao years.
- <sup>47</sup> Jahiel, *The Contradictory Impact of Environmental Reform in China*, p 86.
- <sup>48</sup> Scott Rozelle, Xiaoming Ma & Leonard Ortolano, 'Industrial wastewater control in Chinese cities: determinants of success in environmental policy', *Natural Resource Modelling*, 4, 1993, pp 32–37.
- <sup>49</sup> In 1978 the gross output value of TVES was 49.3 billion yuan, while total industrial output across China was 423.7 billion yuan, representing 11.6% of that total. By 1995 the gross output value of TVFS was 6891.5

- billion yuan, while China's total industrial output was 9189.4 billion yuan, representing 75% of that total. See *China Statistical Yearbook*, 1996, pp 389, 401.
- <sup>50</sup> The consumption of chemical fertilisers in the Chinese countryside increased from 8.8 million tons in 1978 to 38.3 million tons in 1996. See *China Statistical Yearbook*, 1997, p 373.
- <sup>51</sup> Edmonds, *China's Environment: Problems and Prospects*, p 159.
- <sup>52</sup> Interview, August 1995.
- <sup>53</sup> I visited seven eco-villages between 1992 and 1997. They were Liu Min Ying, in Daxing County, Beijing Municipality; Xiao Zhang Zhuang, in Yingshang County, Anhui Province; He Heng, in Jiangyan City, Jiangsu Province; Teng Tou in Fenghua County, Zhejiang Province; Qian Wei, in Chongming Dao, Shanghai Municipality; Dou Dian, in Fangshan District, Beijing Municipality; and Tie Xi, Mishan County, Heilongjiang Province. The first four villages won the UNEP 'Global 500' award for environmentally friendly economic development in 1987, 1990, 1991 and 1993, respectively. Additionally, I visited the Environmental Protection Bureaux (EPBS) in Dazu County, Sichuan Province and Simao County, Yunnan Province, both designated eco-counties by NEPA in 1993.
- <sup>54</sup> J S S Muldavin, 'Agrarian reform in China', in R Peet & M Watts (eds), *Liberation Ecologies*, London: Routledge, 1996, p 229.
- <sup>55</sup> Hinton, *The Great Reversal*, p 21.
- <sup>56</sup> J S S Muldavin, 'Impact of reform on environmental sustainability in rural China', *Journal of Contemporary Asia*, 6(3), 1996, p 289.
- <sup>57</sup> Richard Sanders, *Prospects for Sustainable Development in the Chinese Countryside: The Political Economy of Chinese Ecological Agriculture*, Aldershot: Ashgate, 1999.
- <sup>58</sup> Bernard Glaser, *Environment, Development and Agriculture, Integrated Policy through Human Ecology*, London: University College of London Press, 1995, p 100.
- <sup>59</sup> Life expectancy at birth in China fell from 70.1 years in 1990 to 68.6 years in 1993. See UNDP, *Human Development Reports*, 1993, pp 128 and 1996, p 136.
- <sup>60</sup> Abigail Jahiel, 'The organization of environmental protection in China', *China Quarterly*, 156, 1998, p 781.
- <sup>61</sup> Translated from *Jiefang Daily*, 12 July 1997.
- <sup>62</sup> Jahiel, *The Organization of Environmental Protection in China*, p 784.
- <sup>63</sup> Ma Zhengang, Chinese Ambassador to the UK, lecture at Chinese Economics Association (CEA) (UK) annual conference, Middlesex Business School, March 1999.
- <sup>64</sup> Quarterly Chronicle and Documentation, *China Quarterly*, 152, 1997, p 910.
- <sup>65</sup> Richard Louis Edmonds, 'China's environment, problems and prospects', in Dwyer, *China: the Next Decades*, p 257.
- <sup>66</sup> Lotspeich & Chen, *Environmental Protection in the PR of China*, p 59.
- <sup>67</sup> Jahiel, *The Organization of Environmental Protection in China*, p 785.
- <sup>68</sup> *Ibid*, p 784.