

## BOOKS &amp; ARTS

# How one child was deemed enough

Scientific policy-making in China has come a long way since the 1970s, argue **Ling Chen** and **Gang Zhang**.

## Just One Child: Science and Policy in Deng's China

by Susan Greenhalgh

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Beijing's subway trains are always packed with locals, migrant workers, job seekers and tourists. Most are in their twenties or thirties; they look well fed, well clothed, healthy, educated and wealthy. Some read newspapers, others talk on mobile phones. Having recently read *Just One Child*, one looks at these passengers with new eyes, trying to imagine the scene if China had not adopted its 'one child' policy. Would the trains have been more crowded, the people less wealthy? Would they have been happier or wiser if they had brothers or sisters?

China's family-planning policy, in place for almost three decades, ranks with its economic reforms as among the most transformative measures in modern Chinese history. The policy, rolled out in 1980, deemed that each couple could have just one offspring or face penalties.

People from Western cultures might assume that the controversial policy was just one in a long line of inscrutable political movements within China's authoritarian leadership of the period. According to anthropologist Susan Greenhalgh's new book, however, the real impetus for this sweeping measure came from a small group of ambitious aeronautical scientists who ventured into population modelling in 1980. Using predictions of population growth from computer models, the group convinced China's political leadership that only drastic action would control the country's soaring number of citizens. Greenhalgh's investigation of the history and politics of this fateful policy decision is meticulous. Through compelling storytelling and analysis, she draws together field and archival studies that cover the two decades from 1982 to 2007, spanning huge social, political, cultural and geographical distances.

The family-planning policy was launched just as the spirit of science was recovering from the country's traumatic Cultural Revolution, at a time when Chinese people's enthusiasm to advance economic development and transform society had reached unprecedented heights. The booming population seemed to be a growing burden for the whole country.



Birth-control campaigns were boosted by 'proof' from population models by missile scientists.

Social scientists and demographers suggested several milder methods of population control, but it was leading scientists from the Ministry of Aeronautics and Astronautics who played a decisive role in the policy-making. These researchers had achieved great success during the 1960s and 1970s working on missile projects that used mathematical control theory, gaining them the trust of politicians. When they used their models on a social-science issue for the first time, their results were treated as facts.

Greenhalgh contends that the advice of the missile scientists, thanks to their seemingly authoritative scientific tools, fortified the conviction of Chinese leaders that strict family planning was a national necessity.

Through her penetrating analysis, the author attempts to explore relationships between the state, science, technology and society, and the rise of modern China. She argues that science was far from a tool manipulated by politicians. Rather, she contends that the scientists involved exerted their influence through normal decision-making channels, such as persuading veteran cadres and planning departments to agree with their suggestions. Extrapolating from the case of the family-planning policy, she seems to warn that the intrusion of science into sociopolitical fields can be rather dangerous.

In fact, the situation was more complex:

the flaw was unscientific policy-making. In late-1970s China, the governance and process of policy-making were far from well established. Its political leaders decided that population control was crucial to the future of the country, leaving them no choice but to embrace the policy. They then sought a scientific 'proof' to help the idea gain popular acceptance, but did not fully debate the alternatives. China's political system was unable to address the bias of scientism.

Chinese policy-making remains a mystery to many natives, let alone to foreigners. Happily, the process has changed significantly during the past decades. Before Deng Xiaoping's economic reforms and opening up of China from 1978, policy-making involved only national political leaders, top technocrats and scientific elites. During the 1980s and 1990s, Deng's reforms strengthened policy-making roles and awareness in governmental and non-governmental organizations and social-interest groups.

The current government, headed by President Hu Jintao and Premier Wen Jiabao, puts even greater emphasis on policies that place the value of people and their human rights at their centre. This government also emphasizes a scientific concept of development, which refers to a rational and sustainable growth model that balances economic development, social welfare and environmental and

ecological sustainability, and aims to address the damaging social, ecological and environmental effects of the current growth model. It encourages public organizations to take part in crafting social, environmental and industrial policies. For example, the recent reforms to the health-care system involved more than six organizations, including universities, research institutions, foreign consulting companies and international bodies, who submitted proposals that were then debated within and outside the government. Science is playing an increasingly important role beyond providing justifications for government policies.

Chinese policy-makers now have dramatically different educational backgrounds and characteristics from their predecessors. Between the 1950s and 1960s, veteran soldiers with limited education held almost all major government posts. In the 1980s, Deng Xiaoping's new criteria of cadre selection promoted middle-aged officials with engineering backgrounds into senior positions, resulting in a government dominated by technocrats. In the 1990s, those with degrees and experience in economics and public management gradually moved to the centre of politics. Hopefully, future generations of Chinese policy-makers will be equipped with social, political and legal knowledge conducive to an enhanced understanding of the human impact of public policies and the significance of scientific policy-making.

The family-planning policy has had both negative and positive effects on Chinese society. It has produced an alarmingly wide gender gap in the sector of the population born after the 1980s, and an inverted pyramid demographic that will be challenging to care for in the coming decades. The effects of a generation of 'little kings' on Chinese society and culture remain to be seen. However, the policy seems to have helped China move into the fast-lane of economic development. It may also have accelerated the improvement of the population's well-being, as evinced by higher education levels and lower infant mortality rates.

In reality, the family-planning policy was never fully implemented. Ethnic minorities and rural peoples — the majority of China's population — could in practice have two or more children, if not by policy design, then by paying an economic, political and social cost, such as in lost public-sector jobs or heavy fines. And from 1984, rural residents whose first child was female were allowed to have a second child. China's real fertility was thus estimated to be around 1.8 children per family in 2006. However, according to a study in 2006, there are no accurate data because of missing birth registration records that have resulted in a hidden population.

It is now vital to determine if the policy

should be relaxed, and what should succeed it. In recent years, Chinese demographers and policy-makers have begun to try to identify a fertility rate that would balance the population. This time it seems more likely that China will set a rational policy, having much improved its scientific policy-making system. ■

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Beijing's new science centre will be the first of many in China.

RTKL ASSOCIATES

## A museum in every district

**China Science and Technology Museum**  
Olympic Village, Beijing  
Opening September 2009



With up to 30,000 visitors a day, the Beijing-based China Science and Technology Museum is grossly oversubscribed. In response, China is building another one more than twice the size, costing 2 billion yuan (US\$300 million). The museum (artist's impression, pictured) will open in Beijing's Olympic Village in September 2009, in a building designed to resemble an ancient Chinese puzzle, the Lock of Luban.

The museum will showcase scientific and technological developments in all disciplines, from agriculture, geology, alternative energy and environmental protection to space exploration, as well as inventions from ancient China. There will be an exhibition hall for children, who are expected to constitute half of the visitors. With running costs of 150 million yuan a year, the building will boast the world's largest dome video screen and laboratories where participants can do short research projects.

"The new museum is emblematic of China's long-term commitment to science communication," says Zhu Youwen, director of the venue's planning and development. In June 2002 China's top legislature, the Standing Committee of the National People's Congress, passed a bill on the dissemination of developments in science and technology to the public.

The country's current 15-year strategic plan for science and technology, announced in February 2006, prioritizes the improvement of public understanding in these areas. Infrastructure is the first step. All 34 districts in China plan to have at least one science museum in their capital cities by 2010, adding to the 40 or so already in existence. More than a dozen are under construction, including what will be the world's largest science museum when it opens in Guangzhou, Guangdong province.

Many applaud China's political and financial commitment to science communication. But some critics, such as science historian Liu Bing of the Centre of Science, Technology and Society at Beijing's Tsinghua University, are concerned that the quality of exhibitions and events may not be up to scratch. Some provincial science museums also fail to attract significant visitor numbers, and there are few public debates on topical or controversial issues such as traditional Chinese medicine, stem-cell therapies and genetically modified crops.

Zhu concedes that there is much room for improvement. So Beijing's new science museum will foster closer collaborations with its counterparts elsewhere in the country and abroad. It also plans to host seminars and workshops at which scientists, policy-makers and the public can debate crucial scientific matters.

Some hurdles must still be overcome, Zhu explains. Public participation in Chinese policy-making is a new concept to all involved. Government officials are not yet reconciled to having to justify political decisions to the populace, nor