CHAPTER 12

Case Study: The Chinese Government Scholarship Program—the Brain Development Scheme That Illuminates a Vision Across 30 Years

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12.1 Introduction: What Rationale Is Behind the Organized Study Abroad Program Funded by the Chinese Government?

China's organized effort of sending students to study abroad can be traced to the early twentieth century, and it is always associated with China's self-strengthening ambition. The earliest program of this type in modern times might be associated with China's defeat by the Eight-Nation Allied Forces in 1900. As a result, then Qing Government of China had to pay the Western Powers 450 million Haikwan [Custom] Taels (an imaginary unit), payable in installments across 39 years, with an interest rate at 4% per year. The USA was the first state that acknowledged it had asked for "too much" from the indemnity, and as such, it announced

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in 1908 to return the excessive part, which was mainly used to initiate the Tsinghua School and to dispatch Chinese students to the USA. In total, over 1,000 Chinese students were supported by the USA remission funds to study in the USA from the 1910s to 1940s (Hunt 1972). Most of them eventually chose to go back to China, and helped introduce and establish a modern education system on Chinese soil. The USA remission-financed Tsinghua School evolved into the National Tsinghua University, which has remained as one of the top universities in China up to this date.

The next major scheme of this type occurred in the 1950s, when thousands of Chinese students were sent to then Soviet Union. Due to manpower needs for China's industrialization drive and the political alliance among socialist countries, China now set the Soviet Union as the destination for advanced study abroad. From 1951 to 1960, a total of 8,208 Chinese students were sent to study in the Soviet Union. Among them, nearly 70% were in programs of science and engineering fields relating to industrial production, construction engineering, and transportation technology (Miao 2010). China remodeled its entire higher education system based on Soviet patterns, that is, closely linking higher education institutions to economic sectors. In such patterns, most Chinese higher education institutions became sectoral institutions in areas such as agriculture, forestry, medicine, finance, law, language studies, physical culture, fine arts, and minority education. Each institution was narrowly specialized in its programs, and its role was to train personnel for its specific sector. After China split with the Soviet Union politically in the late 1950s, Chinese government reduced dramatically the number of the USSR-bound students and started transforming the higher education system along some indigenous ideas amid the Great Leap Forward Movement—an experiment to achieve self-reliance (Hayhoe and Zha 2006).

China's government-sponsored study abroad programs have been driven by its national development agenda with ups and downs as well as shifting priorities in terms of destinations, levels, and fields. The current reform era—since the late 1970s—has witnessed an unprecedented scale of study abroad in the modern history of China. Between 1978 and 2015, over 4 million Chinese students went to study abroad on programs of various levels, mostly in major Western countries, for example, the USA, the UK, Canada, Australia, Germany, France, and Japan. Among them, approximately 20% were supported by Chinese government scholarships. In the past decade, the Chinese Government Scholarship Program (CGSP) supported on average 30,000 students and scholars to study abroad per

year, which is beyond the scope of any other country. Behind such an extraordinary effort, what characterizes the contemporary Chinese Government Scholarship Program? What are the highlights, strengths, and attainments of the CGSP? And what have been the main drawbacks and challenges of the CGSP? These are the questions to be explored in the remainder of this chapter.

12.2 A Review of the Chinese Government Scholarship Program in the Reform Era: Prompting Brain Mobility in an Unprecedented Scale

This section is a detailed account of the CGSP since China adopted economic reforms and opening up to the outside world with accompanying changes in policy and strategies, in the late 1970s. Roughly, this era can be divided into three phases concerning government-sponsored study abroad: the policy emerging phase (1978–1982), the policy development and adjustment phase (1983–1992), and the policy blossoming phase (1993–present) (Miao 2010). Embarking on a journey of reform and opening up, China set sending students to pursue advanced study in the Western countries as one of the earliest policy initiatives aiming to modernize the country. In June 1978, then China's leader Deng Xiaoping explicitly expressed such an idea: "I am in favor of increasing the number of students studying abroad, mainly engaged in fields of natural sciences ...to thousands" (Miao 2010, p. 167). A month later, on July 11, 1978, China's Ministry of Education (MoE) reacted to Deng's idea and proposed to the CPC Central Committee and the State Council a plan to send 3000 scholars and students abroad per year for 5 years,[1] to be concentrated in the fields relating to natural sciences, including basic sciences (30%), engineering (35%), agriculture (10%), and medicine (10%). Social sciences accounted only for 15% in the plan. These scholarship beneficiaries were solely supported by Chinese government funds. By the end of 1978, the first group of 52 Chinese scholars landed on the soil of the USA, only days before the two countries established official diplomatic relations. They were mostly in their 40s, and, except for one, all returned to China 2 years later.

The government scholarship program initially focused on undergraduate students. Hence the distribution of the 3000 quota was: undergraduate students 60–70%, visiting scholars (those in-service university teachers who visit a host university abroad for a period of several months to 1 year, to

conduct their own research and engage with other professional development activities) 15–20%, and graduate students 15–20%. Such a plan went through heated debates, mostly relating to the high costs as well as the concerns over no-return associated with undergraduates. Indeed, statistics showed that, during the period 1979–1982, the number of undergraduate students who returned to China on time accounted for only 19% of the total of its kind, while the visiting scholars and graduate students showed higher return-rates for they were mature recipients with specific purposes for study abroad. As a result, the proportion of scholarships for graduate students rose from 1.6% in 1978 to 33.0% in 1982, and for undergraduates it dropped from 25.5% in 1978 to 7.6% in 1982 (Miao 2010). In sum, China's policy of supporting study abroad through government scholarship programs emerged during 1978–1982, and largely met the proposed goals in this phase. Figure 12.1 describes a trend of increasing government-sponsored study abroad in this period, though a small dip occurred in 1982 due to the categorical changes in the selection process, as described above. In the meantime, the number of returnees reached a peak in 1982, as many graduated from their study programs that year.

The second phase (1983–1992) was characterized by some ups and downs with respect to the policy supporting study abroad and concerning

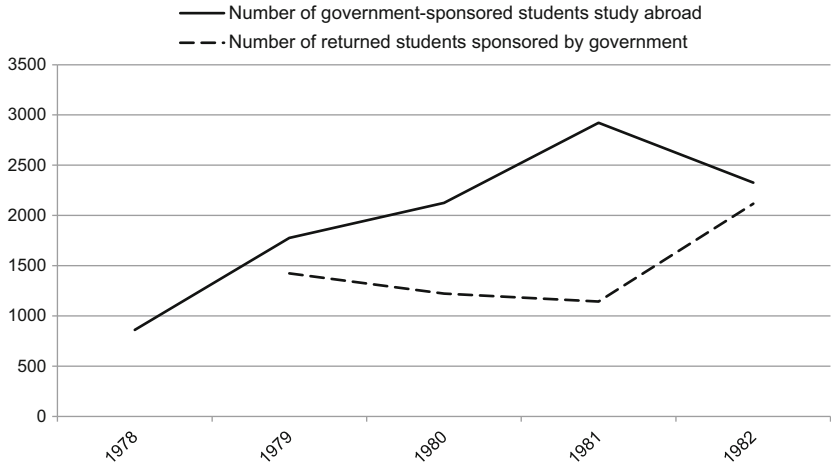

Fig. 12.1 Magnitude of Chinese government-sponsored study abroad and returnees to China: 1978–1982 (Source: Chen et al. 2003, p. 98)

the CGSP in particular. On the one hand, China's opening up to the outside world started to pick up the pace and widen its scope. So too were the needs to support study abroad, which now became an integral part of China's modernization drive. Hence, the CGSP grew steadily in size. The central government even delegated to local governments or institutions partial authority to examine and approve applications for the CGSP scholarships, while allowing and encouraging various social sectors to establish programs of "institution-sponsored study abroad" (danwei gongpai), that is, the institutions of higher learning and research made use of their own resources and sent their teaching and research staff to pursue advanced study abroad. As such, the visiting scholars now accounted for the largest proportion of Chinese studying abroad, taking up 70% of the total since 1987 (Miao 2010, p. 229), while the Chinese government started in this phase to select a few graduate students to pursue doctoral degrees abroad.[2] Meanwhile, there was a significant decline in the proportion of undergraduate students as the awardees. This also indicated that more importance was now intrinsically attached to the goal of ensuring and improving the rate of returnees. In two documents issued in 1986 and 1987 setting work principles for selecting and sending Chinese scholars and students abroad, it was emphasized that importance must be attached to the selection of visiting scholars. As a result, the quota for selecting government scholarship recipients in 1987 was set as: visiting scholars accounting for approximately 70%, graduate students for about 25%, and undergraduates (mainly language majors) for 5%. Understandably, visiting scholars were much more likely to return to China than undergraduate students. The same documents required the awardees to sign an agreement, which specified their length of stay abroad and obliged them to come back upon completion of study programs. Figure 12.2 shows a generally rising tendency in terms of number of returnees in this phase until 1989.

On the other hand, the political turmoil in the early summer of 1989 in Beijing led many Chinese scholars and students to seek permanent residence abroad, which was supported by the favorable policies set in place in their resident countries. For example, on April 11, 1990, President George H.W. Bush issued the Executive Order 12711, which waived the 2-year home country residency requirement for Chinese students, visiting scholars, and other Chinese nationals who had been in the USA between June 5, 1989 and April 11, 1990, and gave them employment authorization through January 1, 1994. It was then made permanent when the Chinese Student Protection Act was passed in 1992. The Act also allowed Chinese

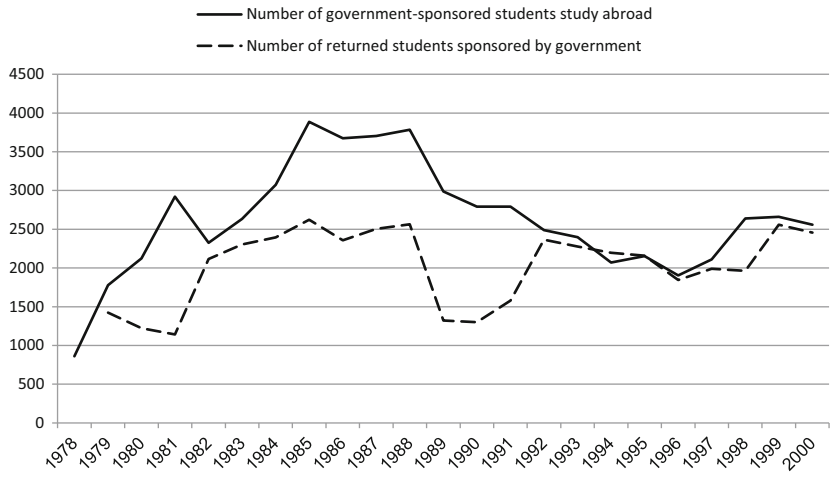

Fig. 12.2 Magnitude of Chinese government-sponsored study abroad and returnees to China: 1979–2000 (Source: Chen et al. 2003, p. 98)

nationals who entered the USA before the issuance of Executive Order 12711 to apply for permanent resident status. Consequently, more than 50,000 Chinese scholars and students obtained 'permanent residence' in the USA in the 1990s and early 2000s. The Australian government provided political protection as well, giving legitimate right of abode to approximately 36,000 Chinese students studying in Australia. The government of Canada announced likewise to give all the Chinese students in Canada 'the right of abode.'

Such actions resulted in a downturn in the number of returnees immediately after 1989, which didn't fully recover until the late 1990s. They also added urgency to the policy goal of attracting returnees. Thus, 1989 witnessed establishment of the Chinese Service Center for Scholarly Exchange (CSCSE) in Beijing, whose mandate was to provide employment services for the returnees. In addition, the Chinese government implemented other supportive strategies to lure back expatriate talent, which included creating centers for post-doctoral research (boshihou keyan liudong zhan) throughout the country. These centers were meant to assist the returnees at their initial stage in adapting to working and living conditions in China. The Chinese government also put aside a special fund (10 million *yuan* RMB per year, or USD 1.5 million, in this phase) to

support research activities of the returnees, and the National Natural Science Foundation of China (NSFC) now allowed overseas Chinese students who would graduate soon to apply for competitive research funds through their China-based employers even before they came back.

As discussed above, Fig. 12.2 presents a dip in the number of returnees in 1989–1990. The concomitant decline in the number of those being sent abroad continued until 1996. Notably, the inbound magnitude was always lower than the outbound, except for one specific year (1994). Often, the former was significantly below the latter during the 1980s and early 1990s, which indicates that a substantial portion of government scholarship awardees remained abroad. They helped form a Chinese expatriate talent pool in the West, and often made an elite core in the global pool of Chinese talent.

The most recent phase spanning the period from 1993 until now bears a robust growth of the CGSP. Deng Xiaoping's influential Southern Tour in 1992 reassured that China was to carry on reform and opening up, which in turn led to China's fast and steady economic growth. The economic prosperity ushered in escalating needs for study abroad, for the sake of preparing and supplying high-caliber human resources, and growing confidence in doing so—in the sense that the overseas Chinese students would go back for career opportunities. In 1996, the China Scholarship Council (CSC), a non-profit organization affiliated to China's Ministry of Education, was established. On behalf of the Chinese government, the CSC sponsors Chinese citizens to pursue study abroad and international students to study in China. The selection procedure therefore altered, from the previous one based on institutional recommendations, now to a more centralized one following the rule of "applying by individuals, review by experts, fair play, best first, contracting to be sent, and compensating for breach of contract" (geren shenqing zhuanjia pingyi pingdeng jingzheng zeyou luqu qianyue paichu weiyue peichang). Compared with practice in the previous period, the current procedure reflected the principle of open, competitive, merit-based scholarships, and it now carried the legal components that require the awardees to return to China upon completion of their study program. Arguably, such changes opened the door wider for academically able candidates across the country to the opportunity of study abroad and utilized legal binding procedures to maintain a high return rate.

The CSC undertook a series of reforms with respect to Chinese government scholarship program. This first was expanding the program, and increased the number of awardees dramatically twice, respectively, in periods of 2002–2008 and 2010–present, as shown in Fig. 12.3. Figure 12.3

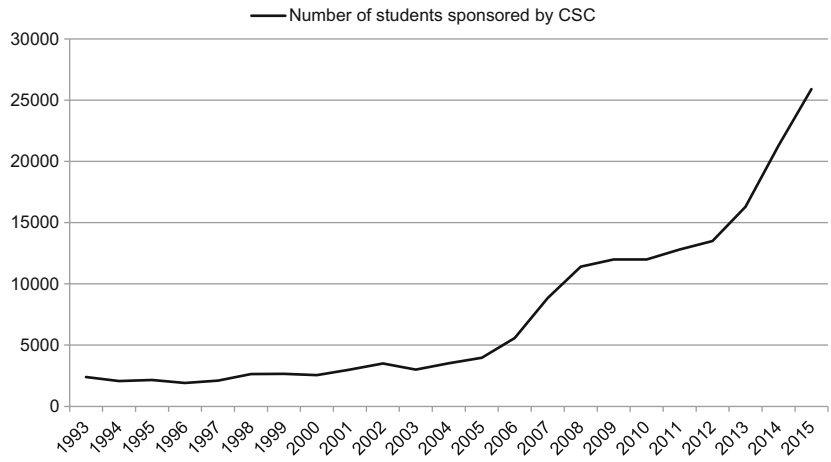

Fig. 12.3 Magnitude of Chinese government-sponsored scholars/students studying abroad: 1993–2015 (Sources: Chen et al. 2003, p. 98; Wang and Guo 2012, p. 8; MoE statistical bulletins re Chinese students studying abroad, 2003–2009 and 2011–2015)

clearly depicts a striking increase in sending magnitude in this phase particularly since 2003. In the "2015–2017 Action Plan for Overseas Study Work" (liuxue gongzuo xingdong jihua), the Chinese State pledged to further expand the size of government scholarship program. Such moves were clearly driven by China's talent needs in order to boost the country's R&D capacity and usher in a knowledge-based economy. By the same token, the second reform initiative was a shift of focus from sending visiting scholars to graduate students, in particular doctoral students as well as post-doctoral candidates.[3] Such an initiative, together with its magnitude, was unseen in the history of Chinese government scholarship programs. This initiative was launched in 2007, and until 2014, 44,000 graduate students were supported by the program to study in 48 countries. By June 2014, the program focused on supporting graduate students in fields of engineering (representing 44.6% of the total) and sciences (24.3%). So far, 16,768 graduate students studying abroad through this initiative have returned to China, including 2,051 studying for academic degrees and 14,717 from joint programs (PKU Graduate School of Education Research Team 2014). The CSC plans to send 29,000 such students abroad in 2016 alone. Third, and relating to the second reform initiative, the CSC now aims at achieving

'triple first-class,' pledging to select the first-class domestic students, and send them to study in the first-class universities and subject programs abroad, and to work with the first-class academic advisors.

12.3 Highlighting the Strengths of the Chinese Government Scholarship Program: Rendering a Process from Brain Drain to Brain Circulation and Brain Gain

Despite China's efforts to connect study abroad programs to the national development agenda, China suffered from a huge brain drain in the 1980s and 1990s, especially in the years immediately after the political turmoil in 1989. As of 1997, only 32% of the 293,000 students and scholars who had gone overseas since 1978 had returned to China, among whom 40% were those who had gone out as short-term scholars sponsored by the State (Zweig and Rosen 2003). In this circumstance, there were certainly heated debates regarding whether or not to continue the scholarship program. There was indeed a moment of retrenchment in the early 1990s, as shown in Fig. 12.2. Nonetheless, this policy was soon reassured in a 1992 MoE document bearing three key terms: to support study abroad, to encourage return to China, and to allow moving in and out at will [zhichi liuxue, guli huiguo, laiqu ziyou]. Later this expression entered a cornerstone document that set the orientation and path for China's reform initiatives, which was passed on November 14, 1993 at the 3rd plenary meeting of the 14th Central Committee of Chinese Communist Party (CCP) and indicated a consensus in the country's top leadership. Such a consensus also determined China's strategies for luring back expatriate talent, which provide an integral supplement to mirror the attainment of the Chinese Government Scholarship Program.

As indicated in Fig. 12.2, many recipients of Chinese government scholarships chose to stay abroad, which was quite significant until the mid-1990s, when the CSC put in place legal requirements for returning to China. Still, the brain drain continued to a lesser extent thereafter. Hence in 2001, China's Premier, Zhu Rongji, explicitly stated that China would leverage its economic performance and large sum of foreign-exchange reserves[4] to lure back expatriate Chinese talent. He said that "henceforth China would change the emphasis of the open policy from attracting foreign capital to attracting human talent and technology" (Miao 2010, p. 888), in line with a pivot toward a knowledge-based economy. Around the turn of

the century, China launched a number of global talent recruitment programs, pledging to reverse the direction of brain migration. In 1998, the MoE launched the Cheung Kong Scholars Programme (changjiang xuezhe jiangli jihua) to attract expatriate Chinese scholars to teach part time in China-based universities, and join research programs such as the "Start-up Fund for Returnees" (liuxue guiguo renyuan keyan qidong jingfei).

While the Cheung Kong Scholars Programme is financed by foreign funds, essentially by a Hong Kong-based tycoon Li Ka-shing, the talent programs that followed have been purely supported by government funds, including the 100 Talents Program (bai ren jihua) introduced by the Chinese Academy of Sciences (CAS) in 1999, and the National Natural Science Foundation's Distinguished Young Scholars Program (jiechu qingnian jihua) initiated in 1994 but operated in full scale since China's 10th Five-Year Plan (2001–2005). Under the former, awardees receive 2 million *yuan* RMB (equivalent to over USD 300,000) to buy equipment, fund a laboratory, and supplement the returnee's salary (by 20%). In the latter case, awardees receive 800,000 to 1 million *yuan* RMB (approximately USD 120,000–150,000) to pursue their research projects. At the same time, the decision in the late 1990s to invest in developing 'world-class' universities in China also helped bring back expatriate talent. Furthermore, China's domestic market, which offers significant returns to technology transfer, has encouraged many people to return.

Although the Chinese government may well be the most assertive government in the world in introducing policies targeted at triggering a reverse brain drain, such efforts in the first couple of years into the twenty-first century had modest or little impact on the top talent overseas (Cao 2004, 2008). For example, the CAS 100 Talents Program, in spite of its prestigious status, brought back mostly recent PhDs or, at best, postdoctoral fellows (Zweig and Wang 2013). Many Chinese students studying in the West were not keen to return to China,[5] let alone established scholars. As such, in May 2002, the CCP Central Committee and the State Council jointly promulgated the "2002–2005 Outline for Building the Ranks of Nationwide Talent" (quanguo rencai duiwu jianshe guihua gangyao) with its "strategy of strengthening the country through human talent" (rencai qiangguo zhanlue). The guiding principle was to accord returnees "complete trust," and swiftly carry out studies "to determine concrete methods for selecting highly talented returnees to take up leadership positions" (Miao 2010, pp. 889–890).

While the CCP had always been responsible for developing leadership talent within the Party and government sectors under its role in "managing cadres" (dang guan ganbu), a new guiding principle was set in place in late 2002 that hereafter the CCP should also manage research talent (dang guan rencai). In June 2003, the CCP Politburo established the Central Coordinating Group on Talent (CCGT) (zhongyang rencai gongzuo xietiao xiaozu), which was led directly by the Organization Department of the CCP Central Committee with members from a dozen other relevant ministries. The group's main responsibilities all related to guiding and advising the CCP leadership on the affairs concerning supply and development of talent. With the Organization Department now playing a central role in managing research talent, lines of authority and the atmosphere surrounding the 'brain policy' altered. All key line ministries responsible for the reverse brain drain are members of the CCGT, but leadership rests with the Organization Department, which uses its higher authority to coordinate the competing interests and its political leverage to ensure the policy's success.

In 2008, the CCP launched the 1000 Talents Program (qian ren jihua), which heightened the efforts to bring about a major reverse brain drain. It manifests China's most important and prestigious global brain scheme, and has aimed to bring back 2,000 highly talented people over the next 5–10 years. Fundamentally it endeavors to recruit the top brains who could make breakthroughs in key technologies and serve as leading researchers to bring forward emerging fields. Specifically, the program seeks four types of talent: (1) experts and scholars with a professional career and title equivalent to professors in prestigious Western universities and research institutes; (2) senior technical and management professionals working in well-known international corporations; (3) entrepreneurs who own proprietary intellectual property rights or 'core technologies,' with overseas experience as entrepreneurs and familiarity with international practice; and (4) other urgently needed high-caliber innovative and entrepreneurial talents. (Zweig and Wang 2013) Such candidates are almost exclusively among those who went abroad in the 1980s and 1990s, and many were supported by the Chinese government scholarships. Once selected, the incumbents are in principle free to settle in any Chinese city of their choice, and entitled to a one-time subsidy of 1 million *yuan* RMB (approximately USD 150,000) as well as medical and social insurance. They also receive housing and food allowance, subsidy for home leave,[6] and a children-education allowance. Their salary, through mutual consultation,

would often be equivalent to their previous salary overseas (Miao 2010; Zweig and Wang 2013). The 1000 Talents Program provides incentives for institutions as well. If a university brings in a candidate who is approved at the national level 1000 Talents Program—regardless of whether he or she returns full-time or part-time—it gets 12 million *yuan* RMB (around USD 1.8 million), and while the incumbents get the bulk of the funds for their own research, their employer institutions may redistribute some funds to others, making the award a positive event for the whole community. Reportedly, universities with locally approved 1000 Talents incumbents[7] receive 8 million *yuan* RMB (equivalent to USD 1.2 million), of which they can keep some funds as well (Zweig and Wang 2013).

More has been or is being done for the sake of recruiting business entrepreneurs, as local governments strive for new technologies to boost local economic growth. Over 150 incubators have been set up for overseas entrepreneurs in 'high tech' zones in cities all over China. Many cities offer various incentives, such as tax-free purchases of new equipment and vehicles, free floor space in the incubator and, in some cases, investment in the start-up by the zone's management company. Due to such an intensive effort, the 1000 Talents Program lured back 2,263 high-caliber talents as of 2012, exceeding not only the original quota of 2,000 but also the equivalent in the 30 years prior (Wang and Guo 2012). Among the returnees, many went abroad on Chinese government scholarships in the 1980s and early 1990s, and then established their successful careers in the host countries before ultimately deciding to return to China.

China's organized effort to support study abroad through the CGSP, despite the ups and downs discussed above, ultimately achieved a shift from brain drain toward brain gain. Essentially, they are two sides of the same coin. In the twenty-first century, the returnee inflow is of historic proportions, and no doubt the largest influx of high quality talent over such a short period of time in China's history. Such an inflow couldn't be possible without the existence of an expatriate talent pool started and maintained through the CGSP since the late 1970s.[8] Through its policy initiatives, the Chinese government has created a positive cycle of brain circulation: supporting talent to go abroad to increase the value of their human capital and then competing with other countries in the global marketplace for now enhanced talent.[9] The success was initially limited in terms of attracting the top Chinese expatriates, which led the Chinese Communist Party (CCP) to become directly involved in the search for overseas talent in more recent years—a move that in turn boost the return rate, as shown in Fig. 12.4. The

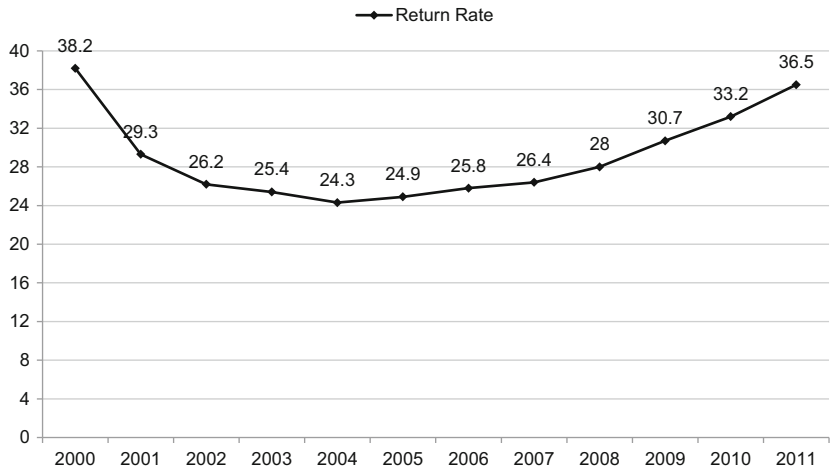

Fig. 12.4 Return rate of Chinese students studying abroad (%): 2000–2011 (Source: Wang and Guo 2012, p. 127)

return rates in Fig. 12.4 represent both government-sponsored and non-government-sponsored returnees, though the government-sponsored type contributes a large portion to—if not dictates—the increase in rate. The "2015–2017 Action Plan for Overseas Study Work" (liuxue gongzuo xingdong jihua) pledges to maintain the return rate of government scholarship holders at 98% or higher, and attract a total of 1 million returnees by 2017.

12.4 The Drawbacks and Challenges to the Chinese Government Scholarship Program

Despite the fact that the CGSP serves as a main pipeline for devising and forging a process of brain circulation, China struggles still with a number of drawbacks hindering its global talent ambitions and strategies (Zha 2014). First and foremost, political control over the university (though under different guises) remains in place in China, albeit after three decades of reform and decentralization (Zha and Yan 2013). The Chinese model for social development, which certainly applies to the higher education sector, features a central role of the State, that is, strong nation-state policy drivers

and close state supervision and control owing foremost to the Confucian tradition that closely articulates academia and state management.

Such a model could make for a double-edged sword. On the one hand, it exhibits enormous advantages pushing for efficiency and rapid outcomes, exemplified by China's enormous effort to focus public subsidies on creating world-class universities and attracting global talent (Marginson 2011; Zweig and Wang 2013). On the other hand, it often causes Chinese scholars and knowledge institutions to be particularly vulnerable, compared with their Western counterparts, to changing social and political milieus (Zha 2012). Such paradoxes may cause dilemmas for China's global brain schemes, and condition those brain schemes largely for the purpose of capacity building—as discussed in Chap. 10 of this volume—rather than the development of social change leadership. Furthermore, only places that offer an open and 'tolerant' environment can arguably appeal to and accommodate the best talent. Otherwise, much of their connection to China will mirror Saxenian's (2006, cited in Zweig and Wang 2013) 'brain circulation' (synonymous with brain mobility) rather than reflect a genuine reverse brain drain. Put succinctly, expatriate global talent is more likely to remain mobile between China and wherever the political and academic climate may be more appealing. Notably, while the Cheung Kong Scholars Programme and the 1000 Talents Program initially accepted only full-time returnees, they now sign up more and more part-time participants, as they were unable to maintain such standards and still get enough talented people.

Second and more relevant to the theme of this chapter, the academic culture in China has been cited as an impediment for its higher education system to reach a leading status in the world (Yang 2016). Academic culture might be defined as the attitudes, beliefs, and values held by academics toward their professional norms and behavior. In this regard, academic misconduct is a serious issue in China. What concerns potential and actual returnees most may be their misfit with the broad academic culture in China, for example, decisions regarding resource allocations and actions toward building the academic community. The story of two prominent returnee scientists Rao Yi and Shi Yigong exemplify such a misfit. Rao Yi used to be a professor of Neurology at Northwestern University in the USA. He returned to Peking University in 2007 to take up the position of Dean of the College of Life Science. Shi Yigong was the Warner-Lambert/Parke-Davis Professor of Biophysics at Princeton University. In 2008, he resigned his position at Princeton and started pursuing his career at Tsinghua

University, as the Dean of Life Sciences. They are among the very few top-flight talents lured back by the 1000 Talents Program. However, in a co-authored article published in *Science*, Shi and Rao (2010) openly claimed that China's current research culture "wastes resources, corrupts the spirit, and stymies innovation" (p. 1128). Specifically, they cited the bureaucratic approach to deciding research funding as something that "stifles innovation and makes clear to everyone that the connections with bureaucrats and a few powerful scientists are paramount." As such, "[T]o obtain major grants in China, it is an open secret that doing good research is not as important as schmoozing with powerful bureaucrats and their favorite experts" (Shi and Rao 2010, p. 1128). They felt frustrated to observe that such a problematic research culture "even permeates the minds of those who are new returnees from abroad; they quickly adapt to the local environment and perpetuate the unhealthy culture."[10] Should it last, such a problematic academic culture would certainly place the efficiency and effectiveness of China's brain schemes in jeopardy.

12.5 Conclusion: The Chinese Model for Development Finds Its Expression in the Chinese Government Scholarship Program

In this chapter, we place the discussion of the CGSP in a broad context of sociopolitical reform and globalization, and in particular within China's successful transformation of brain drain into a process of brain circulation and then brain gain. Both the phenomena of study abroad and brain gain are meant to form a necessary equilibrium in a given society; thus they are better examined together in a holistic picture. Essentially, the former is meant to give rise to the latter, with both serving the national development agenda. For half of the years since the late 1970s, China was among the top countries suffering from brain drain. Hence, only focusing on China's effort to support outflow may not depict the entire picture of China's real effort and ambition. Rather, it needs to be combined with China's global brain strategy and talent schemes since the mid-1990s. Put succinctly, without the brain migration in the 1980s and 1990s, there couldn't possibly be the current brain circulation and brain gain. A key factor in this scenario is the existence of a Party-State in the Chinese society, whereby the Party-led state is able to mobilize all possible means and resources to attain a

specific goal, be it to develop higher education (Marginson 2015) or to render return migration and brain gain (Zweig and Wang 2013).

A central characteristic in the Chinese model for social and economic development is the key role played by the State. This holds true for the CGSP. The State mobilizes all the resources and efforts to send Chinese scholars and students abroad and then lure them back after they complete their study programs or even establish their careers successfully. Such an approach varies significantly from most advanced countries that rely on market forces and head-hunters to bring back their best talent studying or working abroad. Over the past 30 years, the Chinese State leveraged its efficient planning tools, took advantage of a long-range vision, and successfully enabled a process of brain circulation and brain gain that hugely benefitted the country's modernization ambitions. Arguably, the CGSP served as a key catalyst pushing for reform and change as early as in the 1980s. With China now being the second largest economy in the world, the Chinese State has become increasingly confident of employing the CGSP as a strategic tool to serve purposes extending from human capital development to social justice and even public diplomacy. For instance, the Chinese government launched in the twenty-first century a "Special Programme for Developing Talent in Western China" (xibu diqu rencai peiyang tebie xiangmu), which funds academics from China's underdeveloped western provinces to study abroad and improve their teaching and research capacities. Thus, the CGSP is now being employed to promote regional development and narrow regional disparities. More recently, the Chinese government launched a new scholarship program that aligns with China's 'Belt & Road' initiative and serves to build collaborations with countries along the Silk Road and Maritime Silk Road trading routes—through funding study abroad for Chinese students and inbound students from those countries.[11]

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Notes

1. This quota was already unprecedented in contemporary Chinese history. Even during those peak years in the 1950s, the number of Chinese scholars and students sent to the USSR was 2,000 each year at maximum.
2. In 1988, the State inaugurated the policy of "Sino-foreign Joint Training of Doctoral Students" (zhongwai lianhe peiyang boshi yanjiusheng), which

meant to draw international academic resources for the sake of training doctoral students at home; in 1990, China implemented the policy of "Deliberate Selection of a few Graduate Students for Pursuit of PhD Degree Abroad" (jing xuan shaoshu yanjiusheng chuguo gongdu boshi xuewei), in which the policy goal of "ensuring quality and returnees" (bao zhi bao hui) was explicitly stated and emphasized for the first time.

3. The CSC included master's students in its scholarship program in 2009, initially at a scale of around 400 per year, and has insofar supported 4,600 master's students to study abroad. Since 2013, undergraduates are included as well, with a quota of approximately 3,000 per year. (Engberg et al. 2014, p. 15) Such development indicates a return toward the very original intention of the CGSP, that is, to boost raising top-notch talent from a young age.
4. China's foreign exchange reserve approached 200 billion USD in 2000. Joining the World Trade Organization (WTO) in 2001 contributed to China's rapid growth in international trade, and its foreign exchange reserve soared thereafter. By 2014, China's foreign exchange reserve stood at close to 4 trillion USD, far ahead of any other countries.
5. A 2002 research study indicated 92% USA-educated Chinese PhD graduates in the sciences and engineering fields remained in the USA 5 years after graduation, compared with 81% of Indian students, 55% of Canadian students, 43% of Taiwanese students, 33% of Japanese students, 32% of Mexican students, and 7% of Thai students. More recently, a US Department of Energy research study in 2011 found 85% of Chinese students awarded doctoral degrees in sciences and engineering areas stayed in the USA, while China's own study in 2013 generated a figure of 87%.
6. Many incumbents are on a part-time basis, as explained later in this chapter, and they exhibit a similar career/life pattern to the "Two Bases Program" described in Chap. 11.
7. Some provinces and municipalities have established their own "1000 Talents" schemes at a local level.
8. When China suffered from a severe brain drain in the 1980s, and many awardees of Chinese government scholarships chose not to return, then CCP leader Hu Yaobang, said: "It doesn't matter; people who stay abroad will be patriotic overseas Chinese in the future." His successor Zhao Ziyang said even explicitly: to "store brain power overseas." This is indeed the case, some 20 years later.
9. See Chap. 11 in this volume for more successful examples in the global competition for talent.
10. This may add a piece of evidence to the discussion in Chap. 9 with respect to conditionality or restrictions of initiating social change on the part of returnees.
11. China has been heavily leveraging government scholarship programs to pull inbound students, which is another important function of the CGSP,

however beyond the scope of this chapter. According to information released by China's Ministry of Education, in 2015 10.2% of inbound students were on government scholarships, among whom 89.4% were on degree-bound programs.

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