



Central-Provincial Relations for Anti-Schistosomiasis Policy in China

Ka-wai FAN

Chinese Civilization Center, City University of Hong Kong KLN, HONG KONG

(Received 15 Dec 2011; accepted 11 Apr 2012)

Abstract

This paper discusses central-local relations for healthcare policy in China from a principal-agent perspective, based on schistosomiasis control. In order to control the disease, the central government produced the *Outline of the Mid-Long-Term National Plan for Schistosomiasis Prevention and Control (2004–2015)* in 2004. By discussing the implementation of the National Outline at the provincial level, the author uses principal-agent theory to examine conflict and coordination between the central and provincial governments. The documents were collected from the Internet. Although the central and provincial governments all want to eliminate schistosomiasis, allocating funding among them creates conflict and forms an obstacle to achieving the goal. This paper extensively discusses the topics related to central-provincial relation and schistosomiasis control program. Further case study on a single province may be needed to intensify the discussion from a micro perspective. The conflict between central and provincial relations needs to be resolved in order to implement the national policy.

Keywords: Central-provincial relations, Healthcare, Schistosomiasis, Principal-agent, China

Introduction

Following the reform of tax-sharing system in the 1990s, central-provincial relations in China became a key issue in the field of China studies. Facing the decline of centralized power and the rise of provincial power, both central and provincial governments began seeking new ways to accommodate the changing relationship. In 1950s, anti-schistosomiasis policy was a national matter, accompanied by the political “Patriotic Health Movement.” Provincial governments followed the policy dictated by the central government. However, when provincial governments became more autonomous in local affairs starting in the early 1990s, their role in implementing the national anti-schistosomiasis policy also changed. Anti-

schistosomiasis policy thus serves as a lens through which we can examine current central-provincial relations in China.

Taking the schistosomiasis control program as an example, this paper explores central-provincial relations using a principal-agent perspective to discuss a central government document. This paper will discuss the contents of the *Outline of the Mid-Long Term National Plan for Schistosomiasis Prevention and Control (2004–2015)*, and explore the difficulties in implementing the schistosomiasis control program. It will also probe the central-provincial relations in China from a principal-agent perspective, based on the previous discussion.

Background

Schistosomiasis is contracted from water snails, the intermediate hosts of the parasite *Schistosoma japonicum*, often in tropical and subtropical areas. In 2007, it was estimated that more than 560,000 people in China were infected with schistosomiasis, and 6.5 million more were at risk (1). The annual cost of treating patients with schistosomiasis had risen to 4 billion RMB. Since the 1990s, schistosomiasis has been high on the agenda of both the central and local governments, and controlling it is one of the most crucial issues in China.

In the early 1950s, Chairman Mao mounted the “Farewell to the Plague Spirit” campaign, aimed at containing schistosomiasis. Widespread mass mobilization, together with effective agricultural and water conservation projects, successfully eliminated water snails (2-3). However, during the 1960s and 1970s, political upheaval and social instability in China brought all these preventive measures to a halt, and schistosomiasis has become epidemic since then—a resurgence some refer to as “The Return of the Plague Spirit.”

Construction of the Three Gorges Dam, along with frequent floods in the Yangtze River basin precipitated by environmental degradation, have provided ideal conditions for the spread of snails, the intermediate host of the disease, in the southern provinces (4). Thanks to the World Bank Loan Project implemented in 1992-2000, the control and treatment of schistosomiasis have been considerably improved (5). Unfortunately, environmental degradation, frequent floods, and weak public awareness have contributed significantly to the return of the plague in recent years: since 2002, infection rates have risen, host snails have been found in ever-expanding areas, and schistosomiasis has spread to several urban areas.

Literature review

Schistosomiasis control has long been a critical issue in China. Most published findings are scientifically based research especially on chemotherapy and chemical control of snails. In recent years, China has changed its strategy to emphasize health policy and health education in or-

der to control transmission of *Schistosoma japonicum* (6-8).

Recently, Wang and his research team implemented a comprehensive control strategy in two intervention villages and two control villages along Poyang Lake in the southeastern province of Jiangxi, from 2005 to 2007. The strategies included removing cattle from snail-infested grassland, providing farmers with mechanized farm equipment, improving sanitation by supplying tap water and building lavatories and latrines, providing boats with fecal-matter containers, and implementing an intensive health education program. After three transmission seasons, the rate of infection in humans decreased dramatically. These interventions have been adopted as the national strategy to control schistosomiasis in China (9).

From 2004 to 2008, Wang and his research team conducted another experiment, in which they proposed a new integrated strategy to stop the contamination of schistosom eggs into the environment, which emphasizes health education, access to clean water and adequate sanitation, mechanization of agriculture, and fencing of water in four pilot counties in the provinces of Anhui, Hubei, and Jiangxi (10).

Liang and his research team reviewed historical records and found that schistosomiasis had re-emerged in eight counties of Sichuan province by the end of 2004. Song suggested that major changes in the sociopolitical climate, local economic climate, local environment, and the surveillance system over the past several decades were contributing factors to the re-emergence of schistosomiasis (11). Based on Wang and Song, it should be noted that local governments should have played an increasingly important role in schistosomiasis control.

Undoubtedly, as experiments in the above-mentioned villages, the strategy is successful. However, when the strategy is implemented nationwide, what difficulties would local governments face? Although implementing the strategy is workable from a medical perspective, it should be considered that neither central nor local governments could afford to do so in all endemic areas.

First, these researches are usually conducted in one or two villages, or a limited area. The small sample size limits the practical validity of findings to a province. The distribution of schistosomiasis, common in 11 provinces, is cross provincial border. There is no use that a province or village does its best to prevent the disease as the strategy suggest by the experiment, but its neighbor provinces do not do the same.

Second, these researches, supported by funding, seldom disclose the total expenditure. By comparing the cost of a medical experiment and the budget for the schistosomiasis control provided by local governments, the author would like to describe the real situation.

According to Fan's calculation, this case spent US\$373,200, which was equal to RMB 3007992 in 2006. Averagely speaking, RMB 250,666 should be spent in each village a year. According to the data of number of examined persons offered by Wang, it should be acceptable that each person was spent over RMB 400 a year under the scheme. Aiguo and Xinhe villages locate in Sanli Township, which has 121 villages. The total persons of 121 villages are 40,000 today. If implementing the control strategy proposed by Wang, near 5.2% of Jinxian county revenue of 2006 should be spent on one township. Unfortunately, seven towns of Jinxian County are endemic areas (12).

The central government, provincial government, county government, and town government are to bear the cost jointly. From financial perspective, is it possible for Sanli township government and Jinxian county government to follow strictly the ways suggested by Wang?

The central government makes great efforts to eliminate the disease, but it is still common in some areas. Why? Likewise, many studies offer very practical and workable solutions to control the disease, but it is still common in some areas. Why? These studies focus on evaluating and examining the strategies and methods applied in some selected or limited villages. However, previous research has never noted how the local governments implement the central government policy of schistosomiasis control. Obviously, the central government relies on the provincial and local

governments (county and town governments) to implement the strategy to control the disease, but some provincial and local governments are facing their own difficulties in achieving that goal.

On July 8, 2004, the Ministry of Health, National Development and Reform Commission, Ministry of Finance, Ministry of Agriculture, Ministry of Water Resources, and State Forestry Administration jointly produced the *Outline of the Mid-Long Term National Plan for Schistosomiasis Prevention and Control* (2004–2015) (hereinafter referred to as the National Outline). The National Outline provides important guidance on all prevention programs to be launched from 2004 to 2015 in Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Hunan, Guangdong, Guangxi, Chongqing, Sichuan, and Yunnan provinces. More importantly, it requires provincial governments to use it as the blueprint for developing their own versions of prevention outlines practicable for their own situations. The provincial outlines the author has collected include those prepared by the provincial governments of Anhui, Fujian, Guangdong, Hubei, Jiangsu, Jiangxi, Shanghai, Sichuan, Yunnan and Zhejiang (13-22). This paper aims to compare the National Outline with the provincial outlines, so as to provide new insights into the problems faced by local governments when formulating and implementing their own prevention plans.

Guiding Principles and Objectives

The National Outline proposes that the “prevention of schistosomiasis should primarily rely on inter-regional collaboration and broad-based community participation.” Six specific measures are recommended by the National Outline:

1. Health education should be reinforced to raise people's awareness of the disease, particularly among the younger generations.

2. The natural environment should be preserved and the areas infested with water snails should be reduced through collaborative projects on agriculture, water conservation, and forestry.

3. Human and animal diseases should be dealt with carefully, and better feces management

should be provided.

4. Community participation in disease prevention should be encouraged.

5. Regional prevention programs should be launched and inter-regional preventive mechanisms should be established.

6. Laws and regulations should be improved and technological innovation should be pursued (23).

The goal set in 2004 was to bring the epidemic under control in all plagued areas by the end of 2008. Nevertheless, the guiding principles put forward in the National Outline are very broad, and the implementation of the details depends on provincial and local governments.

Health Education

The National Outline begins with the recommendation that “health education should be reinforced to raise people’s awareness of the disease, particularly the younger generations,” suggesting that the central government puts a lot of emphasis on the need to educate children and teenagers, two groups especially prone to infection. It specifically requires that “by the end of 2008, at least 90% of primary and secondary school students, and at least 80% of housewives in areas where schistosomiasis has been contained should have learnt about this disease and its prevention methods. By the end of 2015, at least 95% of primary and secondary school students, and 90% of housewives in areas where the disease has not been put under control should have learnt about this disease and its prevention methods.” Schistosomiasis can lead to hypoplasia, which inhibits physical growth of children and teenagers. According to the Ministry of Education, 1113 cases of acute schistosomiasis were reported from January to November 2003, and 568 of them were primary or secondary school students, representing 51% of the total number of cases. Recent research also shows that schistosomiasis infections mainly occurred among young people (age 6-25) (11). The main reason for such a high number of infections was that students in endemic areas had not learnt about the disease, nor had they been made aware of the need to protect

themselves from infection. They caught the disease when they played in the water infested with the host snails during summer holidays (24).

It is essential for young people to learn about how they can prevent themselves from being infected. However, most provincial outlines only copy the recommendations from the National Outline verbatim, without offering any detailed suggestions as to the implementation of these recommendations. The Jiangsu Outline, for example, states vaguely: “The education department should widely educate primary and secondary students about the disease in the endemic areas. The health authority and state media should take up the responsibility of educating people about schistosomiasis prevention.” (17). Only the Zhejiang Outline introduces a specific three-part approach, requiring that “all students should have one lesson and watch one video about schistosomiasis prevention, and one investigation of water snail distribution should be carried out, in addition to the requirement that government officials should take part in the investigation.” (22) The purposes of this measure are “to familiarize government officials and people with the long-term regular scientific prevention work and to remind them of the need to stay alert all the time even after the disease has been contained.” In fact only the Zhejiang Outline offers specific advice on health education of primary and secondary school students at all; this important aspect is ignored by all other outlines. Since the World Expo will be held in Shanghai in 2010, in 2009 the Shanghai Municipal Health Bureau had to reinforce its prevention efforts by ordering “all infested rural counties to collaborate with the Education Department to launch a new educational program in primary and secondary schools as well as in schools established for children of migrant workers so as to teach students about this parasitic disease and its prevention methods” (25). Now the importance of preventive education has been recognized, but this measure should be fully endorsed by the Ministry of Education and school teachers should be properly trained before it can be effectively implemented. In response to the National Outline, in 2006 the Hunan government

issued *Hunan Teacher Training Scheme for Schistosomiasis Prevention 2006*, requiring teachers and principals in endemic counties to attend a one-day training workshop (26). Following the extension of compulsory education to nine years, schools have become the most effective channel to disseminate anti-schistosomiasis messages. More importantly, the way the disease is transmitted varies from place to place, and schools in different areas have the flexibility to adjust what to teach their students according to their own situations.

The central and provincial governments both require primary and secondary schools in the endemic areas to teach students (via both lectures and more extended health education classes) how to prevent schistosomiasis. The main point is to teach students not to touch, play with, or swim in infected water. However, currently there is not enough data to evaluate the effectiveness of these educational programs.

Mass Participation in Schistosomiasis Prevention

Healthcare reform had already been introduced in 1949, and in 1952, Zhou Enlai proposed that health work should be carried out through “mass movements.” This proposition became the guiding principle of healthcare policy (27). The national top leaders believed that mass participation could help promote political awareness and politicize the public (28). It is believed that people prone to infection became more knowledgeable through massive promotions, which discussed how the disease is spread and how people could prevent infection.

In order to fight schistosomiasis, in 1956, Chairman Mao mobilized the masses, at both the national and local levels, to participate in a campaign with the slogan “Schistosomiasis has to be eliminated.” Such a change raised the disease, previously considered a local issue, to a national level issue on par with other serious diseases. The change of attitude was largely due to the failure of the country to produce the quantity of crops required by the first five-year plan. Mao considered that the spread of schistosomiasis was not only a hidden worry in the southern provinces, but also a

major obstacle to the development of agriculture (2). Since then, the prevention of schistosomiasis was regarded as a national and agricultural issue, not just as a problem of public health. The preventive program was put on an equal footing with national agricultural and water conservation projects.

The main concern that topped the political agenda was how to increase agricultural output during the 1950s and 1960s. Local communes, which were very well organized, could employ every possible means to mobilize the masses for voluntary work (29). With their help, the central government could easily obtain sufficient manpower for any large-scale projects without spending too much money.

During the 1950s and 1960s, the Anti-schistosomiasis Campaign focused on the eradication of water snails. The central government mobilized the masses for agricultural and water conservation projects in order to alter their natural habitat. The National Outline reaffirms the use of these measures to control the snail distribution. So it is easy to understand why the Ministry of Agriculture, Ministry of Water Resources, and State Forestry Administration are all responsible for the preventive work.

However, under the current system it is much more difficult to recruit volunteers. Hence, provincial and local governments need to pour a great deal of money into the preventive program. Rich provinces have the budgetary flexibility to finance their agricultural, water conservation, and forestry projects, but poor provinces do not have the financial stamina to do so. During the 50s and 60s, when the masses were mobilized, anyone who did not actively participate would be labeled as unpatriotic. However, today, who cares to be labeled as unpatriotic?

Mass mobilization addresses the requirement of public participation in the control of the disease. The National Outline notes: “Widespread public participation on a voluntary basis in schistosomiasis prevention should be achieved through combining mass mobilization with the Patriotic Health Campaign to exterminate the snail, improve the living environment, and increase

productivity.” (23) Zheng Jiang, an expert at the Chinese Center for Disease Control and Prevention, lamented: “In the past, peasants prepared their own food and came to help with snail eradication immediately following the whistle of their commune leaders, but now no one is willing to volunteer for the fight against schistosomiasis even though they are paid to do so” (30). Nowadays people are reluctant to volunteer themselves for the prevention program, but the National Outline still encourages public participation by trying to foster patriotic sentiments, a method used to good effect during the 1950s and 1960s but is impractical today.

Among the provincial outlines, only the Guangdong Outline proposes mobilizing the masses for snail investigation, and orders that “farming organizations in each affected county, city, and administrative divisions coordinate with anti-schistosomiasis organizations to mobilize at least 50 people to investigate the snail distribution and help raise public awareness of the disease, and that people be given incentives to motivate them to participate in anti-schistosomiasis work.” (15). It is more than likely that the incentives are financial rewards. The Yunnan Outline also notes, “Villagers in affected areas can be mobilized on a voluntary basis for snail eradication in farmlands and living areas.” (21). The other outlines just copy verbatim from the National Outline regarding public participation in snail investigation. Today, it is not easy to implement this directive in provinces that lack funding for schistosomiasis prevention.

The central government has placed great emphasis on eradication of the host snails as a way to fight schistosomiasis. In the 1990s, chemical control was employed. Thanks to the loan program of the World Bank, effective pesticides can be bought to kill the snails (5). However, the plague returned after the loan program ended, mainly because some local governments can no longer afford to buy the pesticides without the loan support. Poor counties can obtain the pesticides only if they are lucky enough to be subsidized by the central and provincial governments.

Funding the Anti-Schistosomiasis Program

The central government has required local governments to set the budget for the anti-schistosomiasis program. The expenses incurred are to be shared among governments at all levels. However, the National Outline has not specified an amount to be spent each year. As a result, the amounts specified in the provincial outlines differ from one another. For example, Hubei has allocated 1.5–2 RMB per capita but Jiangxi has only allocated 0.5–1 RMB per capita, while the Jiangsu Outline stipulates that at least 1.8 RMB per capita will be spent (16, 18). The outlines of other provinces omit any mention of how much to spend. According to a December 2004 news article in the *Wenhui Bao*, Mr. Wong, Director of the Schistosomiasis Control Office in Jiangling County of Hubei, reported that a study on rural villages in the county showed that at least 120 million RMB were needed to help a 1500-strong village to reach the plague-free standard set by the central government (30). In other words, at least 800 RMB per capita should be spent financing the anti-schistosomiasis program, projects on integrating agriculture and water conservation, and improvement of lavatory facilities. Given that 2 RMB per capita at maximum are allocated, the available funding is insufficient to start any construction projects. Unfortunately, the central government has imposed a deadline of 2015 in the 2004 National Plan, allowing only an eleven-year span.

In principle, the central, provincial, county, and town governments are to bear the cost jointly. But in practice, central-local relations cause significant tension, as the situation of Jiangxi province demonstrates. According to data from the Department of Finance of Jiangxi, the province budgeted RMB 506,000,000 for the schistosomiasis control program over four years (from 2005 to 2008). The program items included treatment of patients in the terminal stage, construction of new lavatories, comprehensive work on prevention, the purchase of mechanized farm equipment for farmers, and

financial support for the agricultural prevention of schistosomiasis. The central government offered a total of RMB 154,320,000 (31). Accordingly, the provincial, county, and town governments of Jiangxi had to come up with RMB 351,680,000 over four years--RMB 87,920,000 per year (12).

A document on the schistosomiasis control plan of 2010 states that Zhejiang Province lacks the money to spend on schistosomiasis control program. Actually, the provinces of Zhejiang and Jiangsu demand county governments and town governments of endemic areas to include the budget item for schistosomiasis control in their annual financial budget.

It can therefore be seen that the current anti-schistosomiasis program is facing difficulties similar to those encountered by the prevention program during the 1950s and 1960s, when the central government lacked enough financial resources but still insisted on the integration of agriculture and water conservation into the fight against the disease.

Inter-regional Collaboration

Inter-regional collaboration requires effective cooperation among provinces, particularly the southern provinces where the disease has reached epidemic proportions. Cooperation is essential because provinces will inevitably be re-affected by the outbreaks of disease in neighboring areas. The National Outline promotes provincial collaboration and facilitates coordination of cross-border preventive work. In November 2004, the State Council divided the affected areas in the south into three regions: the first region includes Hunan, Hubei, Jiangxi, Anhui, and Jiangsu; the second region Sichuan, Yunnan, and Chongqing; and the final region Guangdong, Guangxi, Shanghai, Fujian, and Zhejiang. Inter-regional collaborative work included establishing an epidemic information exchange mechanism, forming a coordination taskforce, and drawing up prevention plans. The plans require simultaneous execution of preventive measures, such as eradication of the host snails, by contiguous provinces in peripheral areas, to ensure that these areas will not be re-infested (23).

In fact, inter-regional collaboration was already in place in the 1970s. For example, Jiangsu, Zhejiang, and Anhui held the first meeting formulating action plans for cross-border collaboration. However, national-scale collaboration will be feasible only if it is fully endorsed by both central and local governments. The Guangdong Outline simply notes: "Techniques for control and treatment of schistosomiasis can be enhanced through mutual visits of government officials and inter-regional collaboration among affected provinces, such as Shanghai, Fujian, Guangxi and Zhejiang." (15). However, although Guangdong has put the disease under control, its large itinerant population poses additional challenges. Unlike the well-informed locals, immigrants from other provinces are not fully aware of the disease and hence are the most susceptible group to infection.

Discussion

The central government promotes the National Outline and the local governments implement the policy. The comparison of the National Outline and the provincial outlines provides a very good example to examine the complex central-local relations in China (32).

Centralized power and localized fragmentation were two important concepts used to explain the conflicts between central and provincial governments after the economic reform. Huang uses the term 'Chinese style of federalism' to describe the central-provincial relations in which provinces are powerful in the economic sphere and the central government omnipotent in the political sphere. The central political control has been strengthened by appointing provincial officials. Huang considers that the centralized appointment and promotion procedures have an effect on the incentive structures of provincial officials. Therefore, provincial officials are willing to comply with the central economic policy preference (33).

Li calls this process 'compliance analysis.' She considers that the previous studies overemphasize conflicts between central and provincial governments but neglect their cooperation, which often

exists independently of the conflicts (34-35). In reality, both cooperation and tension exist between central and provincial governments in China.

'Principal-agent theory' is often utilized to analyze central-local relations. According to the theory, the principal is mainly concerned with the achievement of the task assigned to the agent. On the other hand, the agent is primarily interested in receiving remuneration in return for the accomplishment of the task. There is a natural conflict of interest between the two because the agent seeks to maximize his or her return, subject to the constraints and incentives offered by the principal. The principal, conversely, seeks to structure the relationship with the agent so that the outcomes produced through the agent's efforts are the best the principal can achieve, given the choice to delegate in the first place (36).

However, as Waterman points out, in the bureaucratic setting, with a focus on policy instead of profit, such conflicts may not always exist between principals and agents: they may disagree over policy, or they may not. Waterman also cited Mitnick's study to inform us that if the principal and agent do not have the same goal, the principal is forced to expend resources both to try to instruct the agent about what to do and to monitor and police the agent's behavior. If agents have the same policy goals, the need for policing and monitoring should logically be reduced. In such cases, of course, principals would not have to expend resources to instruct the agent about what to do (37).

Mitnick's viewpoint may help to explain why the central government refused to expend resources and why the need for monitoring is reduced. Undoubtedly, both central and local governments have the same goal: to eliminate the disease. However, from the provincial governments' point of view, the National Outline is a national level program, which they expect the central government to support financially. From the central government's point of view, provincial governments should be responsible for their own affairs. The central and provincial governments both expect that the other side should pay more. Although

provincial governments and local governments are willing to pay, their money is just a drop in the bucket. In addition, there is no need for policing and monitoring because the central government believes that provincial governments should have enough incentive to implement the National Outline.

Medical research proves that it is practical to control the disease based on health education and some other workable strategies. The most important obstacle is that provincial governments lack the money to do so. Anti-schistosomiasis programs require much time, and their funds have to be constantly replenished. Poor provinces would thus face greater trouble.

Furthermore, it is not easy to require effective cooperation among the provinces for interregional collaboration. It is no use for a single province to do its best to prevent the disease, if its neighboring provinces do not do the same. When the central government needs to cooperate with several provinces, the situation gets more complicated. Each province has its own views on financial arrangements and the plan for controlling schistosomiasis. Eliminating the disease may thus not be a top priority for provincial governments.

Li Keqiang, the Executive Vice-premier of China, repeatedly stated the importance of the control and prevention of schistosomiasis in a national meeting related to anti-schistosomiasis efforts on 7 September 2010. He emphasized that the policy, formulated by the Communist Party and central government, has to be fully and seriously implemented. The central policy of anti-schistosomiasis should be implemented in villages, using grass-roots action by the masses (38). It seems very difficult to implement such a central policy in the villages. In the face of the epidemic threat, the State Council has set up a working group on schistosomiasis prevention responsible for coordinating all the preventive work. However, the central government has to rely on local governments to implement its directives. The natural environment of each province is unique, and so are the endemic situations and the budgets required. As a result, different levels of progress were made by provincial governments, and the preventive pro-

gram was not carried out on a unified basis. Some local governments even ignored what they had been told to do. For example, they failed to follow the central guideline to educate all primary and secondary school students about the disease. The National Outline requires cooperation from various ministries, including Health, National Development and Reform Commission, Finance, Agriculture, Water Resources, Education, and State Forestry Administration, on both national and local levels. In the bureaucratic setting, central and provincial governments include different ministries and departments, which could have conflicts with each other. Therefore, in analyzing the failure of implementing the National Outline, further study on the internal conflicts within the principal and agents should also be noted.

It is very likely that the disease will not be contained by 2015, if provincial governments refuse to cooperate with each other to implement prevention directives set forth by the central government.

Conclusion

It seems that China needs much cheaper ways instead of expensive experiments to eliminate the disease. It is also impossible for provincial governments to follow the strategy provide by these medical experiments. In this paper, the author has probed central-local relations, by discussing the implementation of the National Outline for schistosomiasis control. When dealing with the current difficulties, China should rely on the coordination between central and provincial governments. Schistosomiasis control is just one example. Similar difficulties are also appearing in implementing environmental protection policy in the provinces. Central and provincial relations must be straightened out and a new model of mutual trust and beneficial relations should be established; otherwise, it will not be easy to propose and implement any national-level policy.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc) have been completely observed by the authors.

Acknowledgments

The work described in this article was fully supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (Project No. 9041279, CityU 142707). The authors declare that there is no conflict of interests.

Reference

1. Zhou XN, Wang TP, Lin DD, Wu XH (2009). Current strategy and its effect on control of schistosomiasis transmission in China. *Int J Med Parasit Dis*, 36 (5): 266-273.
2. Fan KW, Lai HK (2008). Mao zedong's fight against schistosomiasis. *Perspect Biol Med*, 51 (2): 176-187.
3. American Schistosomiasis Delegation (1977). Report of the American schistosomiasis delegation to the People's Republic of China. *Am J Trop Med Hyg* 26 (3): 427-57.
4. Zheng J, Gu XG, Xu YL, Ge JH, Yang XX, He CH (2002). Relationship between the transmission of schistosomiasis japonica and the construction of the three gorge reservoir. *Acta Trop*. 82 (2): 147-156.
5. Chen XY, Liying W, Jiming C et al. (2005). Schistosomiasis control in China: the impact of a 10-year world bank loan project (1992-2001). *Bull World Health Organ*, 83 (1): 43-8.
6. Hu GH, Hu J, Song KY, Lin DD, Zhang J, Cao CL, Xu J, Li D, Jiang WS (2005). The role of health education and health promotion in the control of schistosomiasis: experiences from a 12-year intervention study in the Poyang Lake area. *Acta Trop*, 96 (2/3): 232-241.

7. Yuan HC (2002). Achievements of schistosomiasis control in China. *Mem Inst Oswaldo Cruz, Rio de Janeiro*, 97: 187-189.
8. Wang RT (2000). Critical health literacy: a case in schistosomiasis control. *Health Promot Int*, 15 (3): 269-274.
9. Wang LD, Chen HG, Guo JG, Zeng XJ, Hong XL, Xiong JJ (2010). A strategy to control transmission of *Schistosoma japonicum* in China. *New Engl J Med*, 360 (2): 121-8.
10. Wang LD, Guo JG, Wu XH, Chen HG, Wang TP, Zhu SP (2009). China's new strategy to block schistosoma japonicum transmission: experiences and impact beyond schistosomiasis. *Trop Med Int Health*, 14 (12): 1475-1483.
11. Liang S, Yang CH, Zhong B, Qiu DC (2006). Re-emerging schistosomiasis in hilly and mountainous areas of Sichuan, China. *Bull World Health Organ*, 84 (2): 139-144.
12. Fan KW (2011). Why schistosomiasis still has not been controlled in China. *Advances in Med Biol*, 29: 295-8.
13. Bureau of Public Health of Anhui Province (2004). Anhui outline of mid-long term plan for schistosomiasis prevention and control (2004-2015). Available from: <http://www.ah.gov.cn/zfgh/gbcontent.asp?id=3451>
14. Bureau of Public Health of Fujian Province (2004). Fujian outline of mid-long term plan for schistosomiasis prevention and control (2004-2015). Available from: http://www.fjphh.gov.cn/zfxxgk_list.asp?cid=20&id=141
15. Bureau of Public Health of Guangdong Province (2005). Guangdong outline of mid-long term plan for schistosomiasis prevention and control (2005-2015). Available from: <http://search.gd.gov.cn/detail?record=114&channelid=14306>
16. Bureau of Public Health of Hubei Province (2005). Hubei outline of mid-long term plan for schistosomiasis prevention and control (2005-2015). Available from: <http://www.hbcz.gov.cn/home/lm3/lm374/2007-11-12-1054727.shtml>
17. Bureau of Public Health of Jiangsu Province (2005). Jiangsu outline of mid-long term plan for schistosomiasis prevention and control (2005-2015). Available from: <http://www.shida.gov.cn/big5/node2/node3/node295/node325/userobject8ai1850.html>
18. Bureau of Public Health of Jiangxi Province (2004). Jiangxi outline of mid-long term plan for schistosomiasis prevention and control (2004-2015). Available from: <http://www.jxdpc.gov.cn/gjyh/bmhygh/20070320/082507.htm>
19. Shanghai Bureau of Public Health (2006). Shanghai outline of mid-long term plan for schistosomiasis prevention and control (2004-2015). Available from: <http://www.shanghai.gov.cn/shanghai/node2314/node2319/node11494/node12331/node12343/node12659/userobject26ai2668.html>
20. Bureau of Public Health of Sichuan Province (2004) Sichuan outline of mid-long term plan for schistosomiasis prevention and control (2004-2015). Available from: http://www.sc.gov.cn/sczb/lmfl/szfbg/200706/t20070608_185662.shtml
21. Bureau of Public Health of Yunnan Province (2004). Yunnan outline of mid-long term plan for schistosomiasis prevention and control (2004-2015). Available from: <http://www.yn.gov.cn/yunnan,china/72628249196888064/20050715/501023.html>
22. Bureau of Public Health of Zhejiang Province (2006). Zhejiang outline of mid-long term plan for schistosomiasis prevention and control (2006-2015). Available from: http://www.zjwst.gov.cn/art/2008/4/22/art_317_26306.html
23. Ministry of Health of the People's Republic of China (2004). Outline of mid-long term national plan for schistosomiasis prevention and control (2004-2015). Available from: http://www.gov.cn/gongbao/content/2004/content_62905.htm
24. Ministry of Education of the People's Republic of China (2004). Notice for the reinforcement of prevention and control of schistosomiasis in school health education. Available: <http://www.moe.edu.cn/edbas/websitel8/08/info4208.htm>
25. Shanghai Bureau of Public Health (2009). The main points of the prevention of schistosomiasis in Shanghai in 2009.

- Available from:
<http://wsj.sh.gov.cn/website/b/43186.shtml>
26. Bureau of Public Health of Hunan Province (2006). Hunan teacher training scheme for schistosomiasis prevention 2006. Available from:
<http://gov.hnedu.cn/web/0/200606/15102033171.html>
 27. Chen MS (2001). The great reversal: transformation of health care in the People's Republic of China. In: *The Blackwell Companion to Medical Sociology*. Ed, W Cockerham. Blackwell. Oxford, pp. 456-482.
 28. Townsend J (1969). *Political Participation in Communist China*. University of California Press, Berkeley.
 29. Fan KW (2010). Mass mobilization and the anti-schistosomiasis campaign in Maoist China (1955-1960). In: *Handbook for Disease Outbreaks: Prevention, Detection and Control*. Eds, A Holmgren and G Borg. Nova Science Publishers. New York, pp. 277-293.
 30. Tu Q (2004). Letter to wu yi from cheng jiang crying over schistosomiasis prevention. Available:
<http://paper.wenweipo.com/2004/12/24/NS0412240001.htm>
 31. Department of Finance of Jiangxi Province (2005). Spending 500 millions on building a network for schistosomiasis control for 4 years in Jiangxi province. Available from:
<http://www.jxf.gov.cn/visit.php?newid=20090722053343192230224>
 32. Chung JH (1995). Studies of central-provincial relations in the People's Republic of China: a mid-term appraisal. *China Q*, 142: 487-508.
 33. Huang YH (1996). Central-local relations in China during the reform era: the economic and institutional dimensions. *World Develop*, 24 (4): 655-672.
 34. Li Linda CL (1998). Central-provincial relations: beyond compliance analysis. In *China Review 1998*. Ed, J Cheng. Chinese University Press. Hong Kong, pp. 157-186
 35. Li Linda CL (2010). Central-local relations in the People's Republic of China: trends, processes and impacts for policy implementation. *Public Admin Develop*, 30: 177-190.
 36. Kusnanto H (2001). Principal-agent and stakeholder approaches in decentralized health care: the Indonesian Case. Available from:
<http://www.hsph.harvard.edu/research/takemi/files/RP198.pdf>
 37. Waterman R, Meier KJ (1998). Principal-agent models: an expansion? *J Public Admin Res Theor*, 8 (2): 173-202.
 38. Li KQ (2010). Li keqiang's speech. Available:
http://www.gov.cn/ldhd/201009/06/content_1697124.htm