

IX. SUSTAINABLE GROUNDWATER MANAGEMENT: HOW EFFECTIVE HAS GROUNDWATER REGULATION BEING IN NORTH CHINA PLAIN

Jinxia Wang Center for Chinese Agricultural Policy, Chinese Academy of Sciences
[jinxiaw@public3.bta.net.cn]

Faced with increasing demands and limited surface water supplies, farming communities in China began to turn to groundwater sources in the late 1960s, a trend that has accelerated through the 1970s, 1980s and 1990s.

Unfortunately, rising reliance on groundwater extraction has led to falling water tables and deteriorating water quality in north China. In order to promote the sustainable groundwater development, China's government has strengthened groundwater management by issuing some management regulations since the 1990s. Water regulations related with groundwater mainly include water withdrawal permit system, water resources fee, permit system for new tubewell and prohibiting exploitation in over extraction regions. The purpose of this short paper is to assess the implementation effectiveness of these regulations.

National regulation of water withdrawal permit system was issued in 1993; however, some provinces like Hebei in North have begun to implement this system as early as the late 1980s. According to the regulation, any institution or private people who draw water from river, lake and

groundwater through water projects or machinery must apply for water withdrawal permit license except for small volume water withdrawal. Groundwater withdrawal cannot exceed annual planned available groundwater exploitation volume under their administrative regions and it should accord with well layout and requirement of water withdrawal layer. Followed by issuing the withdrawal permit, water resources fee has been collected at the same time. In order to increase farmer income, groundwater permit system and groundwater resources fee have not been implemented in rural areas. Generally, withdrawal permit system has preliminarily prevented unauthorised exploitation of groundwater and environmental deterioration. However, management conflicts among water departments have made it hard to realize integrated groundwater management, one of the major purposes of withdrawal permit system. Separate water management system has reduced the overall effectiveness of the system. In addition, practices of the system vary greatly across regions. There are two major challenges facing with withdrawal permit system and water resources fee: the first

Figure 13



is to implement them in rural areas; the second is to play the role in integrated water management.

Another important regulation is the permit system for new tubewells. No such national regulation has been issued and it is mainly in some north provinces, like Hebei Province. The purpose of this regulation is to prohibit groundwater over extraction by carefully examining feasibility of drilling new tubewells. If the new tubewell will be drilled in the overexploitation regions, the government will not issue the permit to drill. Based on our interview, some local officials believe that this regulation has played important role in sustaining groundwater use. However, the effectiveness of implementation is dubious. Based on our field survey, we found not all the new tubewells got the permit, even some tubewells have the permit, the owners do not understand the implication of the permit. Poor implementation is mainly due to relatively high administrative cost facing with many small farmers. Therefore, challenge for this regulation is how to strength the effective implementation and make it play role in prohibiting the irrational groundwater exploitation.

The latest regulation issued by the Ministry of Water Resources was in 2002; it is on prohibiting groundwater

Figure 14: A village leader in Hebei province displays the withdrawal permit issued to his village



exploitation in over extraction regions. In fact, some provinces like Jiangsu Province have begun this system since the early 2000. The purpose of this regulation is to promote the sustainable development of groundwater by severe administrative measures. According to the regulation, groundwater regions will be classified into several kinds based on their exploitation degree. If certain regions have been classified as over-exploitation regions, all the tubewell there will be closed. Some provinces like Jiangsu Province have implemented this system very well and water table drop has been arrested. Many north provinces have given the priority in implementing this regulation. The challenge for this regulation is how to effectively implement this policy in the long term and in more regions.

In summary, groundwater sustainability issues are attracting increasing attention from China's government. In order to improve groundwater management, several important regulations have been issued and the groundwater regulation system is being established. The challenge facing with groundwater regulation system is how to strengthen the effective implementation of these regulations in the long term.