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# Achievement in Transmission Interruption of Schistosomiasis in China: Ready for Elimination in 2028

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# Outline

Update status of schistosomiasis in China

Activities conducted over past decade

Challenges exist to eliminate schistosomiasis

Prospect to eliminate schistosomiasis



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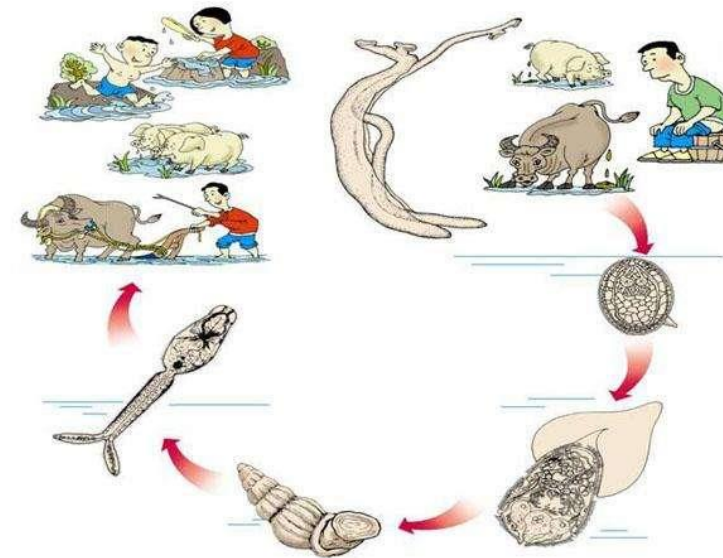
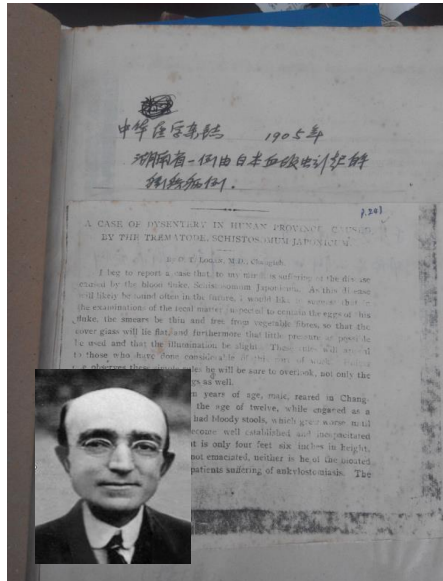
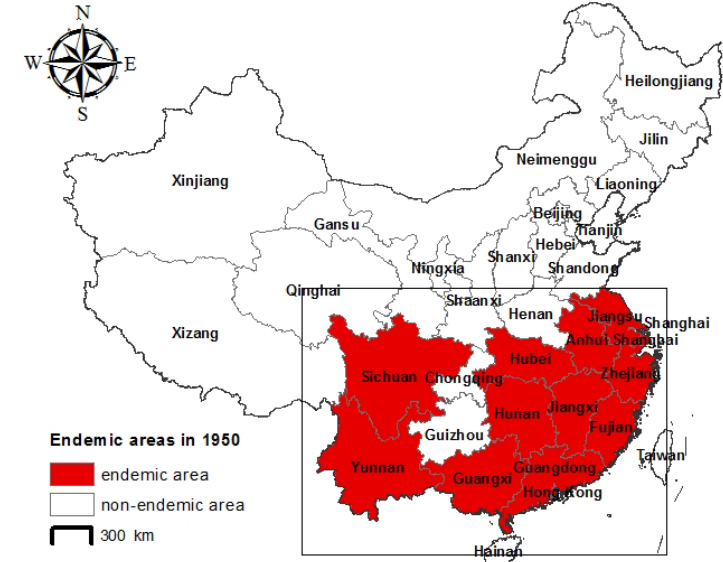
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# Update status of schistosomiasis in China (2012-2023)

## Endemic status-Past

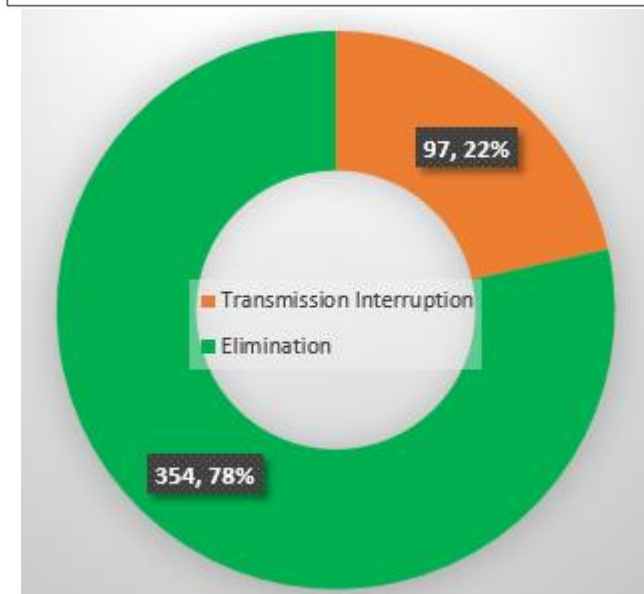
- Has been prevalent in China more than 2100 years.
- First clinical case was discovered in 1905
- Estimation in 1950s:
  - ❑ 11.6 million cases
  - ❑ 1.2 million infected cattle
  - ❑ 14.3 billion m<sup>2</sup> of snail habitats.



# Endemic status during 2012-2023

Year	Reassessment of Elimination	Transmission interruption	Transmission control
2014			Hubei
2015	Shanghai		Jiangxi, Anhui, Hunan
2016	Guangdong, Fujian, Guangxi, Zhejiang		
2017		Sichuan	
2019		Jiangsu	
2020		Yunnan, Hubei	
2023		Hunan, Anhui, Jiangxi	

All provinces reached the criteria of transmission interruption or elimination by 2023.



The status of 451 endemic counties by 2023





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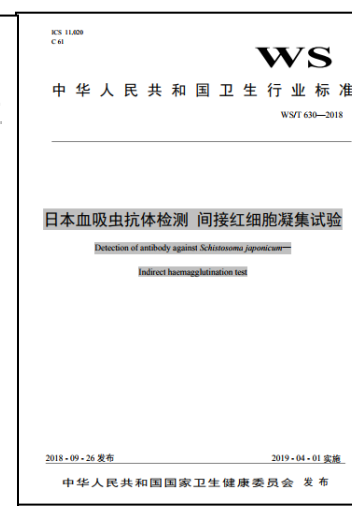
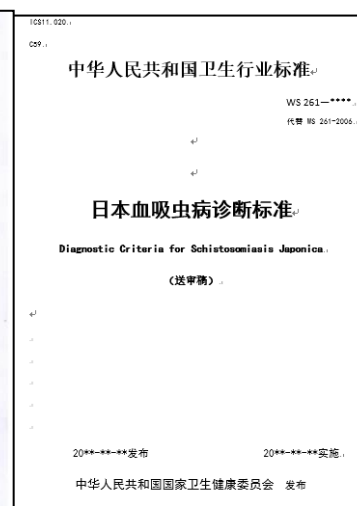
# Activities conducted over past decade

# National plans and technical guidance

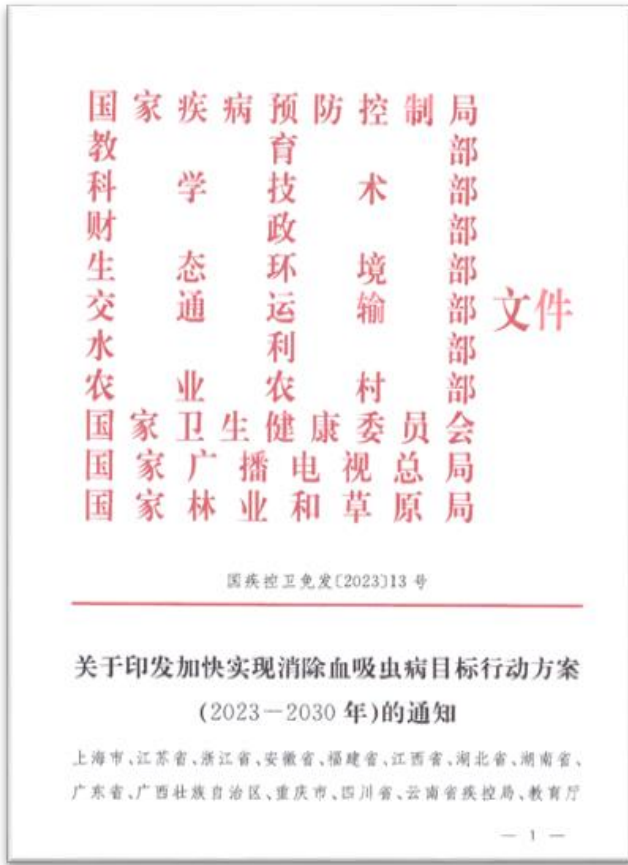
- Medium and long term strategic plan(2004-2015)
- 13<sup>th</sup> Five-year plan(2017-2020)
- Three-year action plan(2018-2020)
- Healthy China 2030 strategic plan (2016-2030)
- **Action Plan to accelerate elimination(2023-2030)**

- Schistosomiasis control and elimination
- Diagnosis criteria for human schistosomiasis
- Diagnosis criteria for animal schistosomiasis
- Snail survey
- Modified thick smear Kato-Katz method
- Miracidium hatching technique
- Enzyme-linked immunosorbent assay
- Indirect hemagglutination assay

➤ Manual for schistosomiasis elimination



# Action Plan to accelerate elimination(2023-2030)



## The ultimate goal:

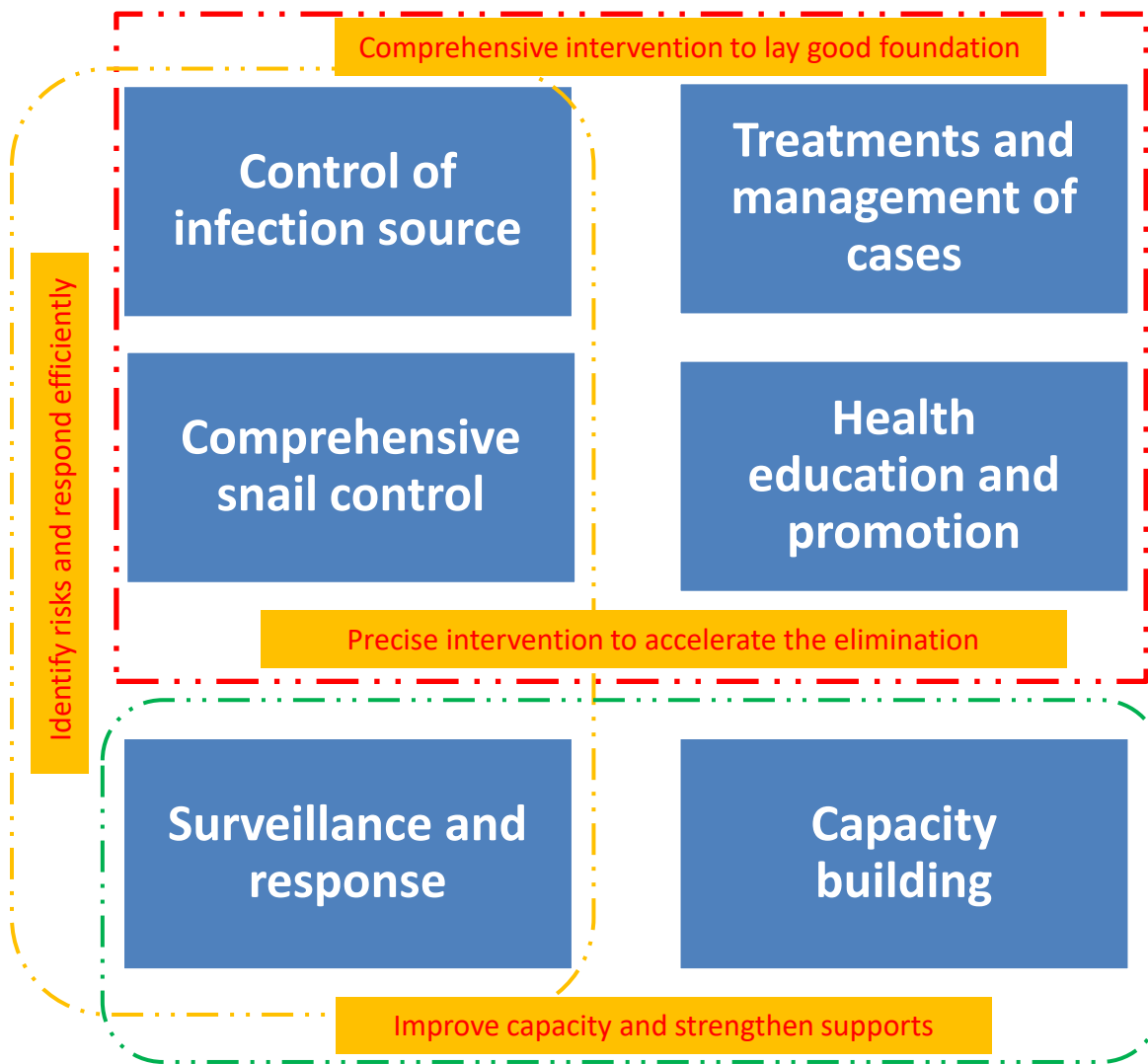
all endemic counties reach the criteria of elimination and a sensitive and effective surveillance system is well established.

## Specific targets:

- ◆ **Crucial period(2023-2025):** all counties reach the criteria of transmission interruption and 85% of counties reach the criteria of elimination by 2025
- ◆ **Sprint period(2026-2028):** all counties reach the criteria of elimination as far as possible by 2028.
- ◆ **Consolidation period(2029-2030):** verify the elimination, maintain and consolidate the achievements of elimination by 2030 .



# Comprehensive strategy emphasized on control infection source and strengthen snail control especially in areas with risk of infection.



Six actions



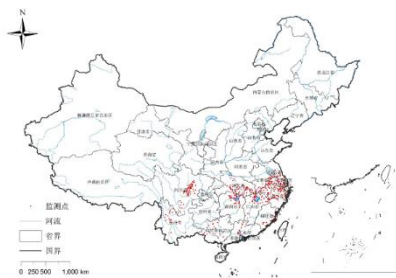
# Provincial plan to consolidate elimination or accelerate elimination were issued by all endemic provinces





# Improve the surveillance-response system

- ◆ Updated surveillance programmes-two version
- ◆ Surveillance activities supported by central government
- ◆ Updated the atlas of schistosomiasis endemic map
- ◆ Organized national snail survey

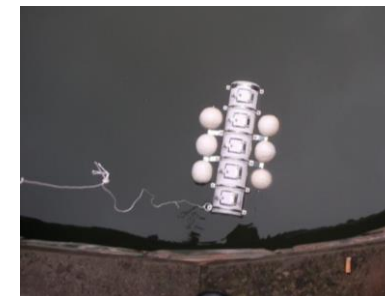


Sentinel sites  
Surveillance

Risk  
waterbody  
surveillance

Surveillance  
in potential  
transmission  
areas

Risk  
Surveillance





# Encourage research and implement advanced tools

- ◆ Genome assembly updated to 3<sup>rd</sup> version
- ◆ Pathogenetic mechanism
- ◆ Risk assessment and prediction models
- ◆ Diagnostic tools
- ◆ Molluscicides
- ◆ Warning tools

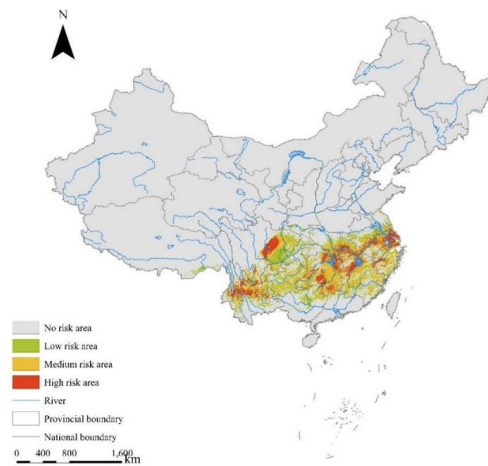
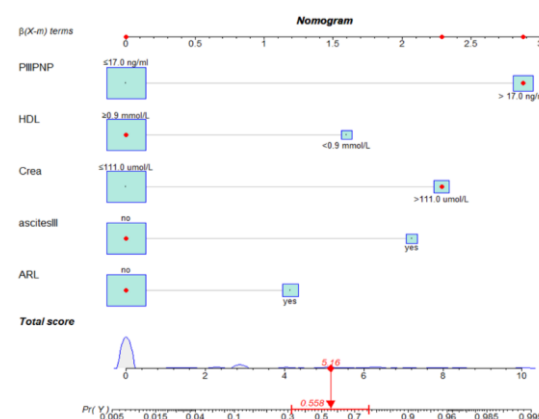
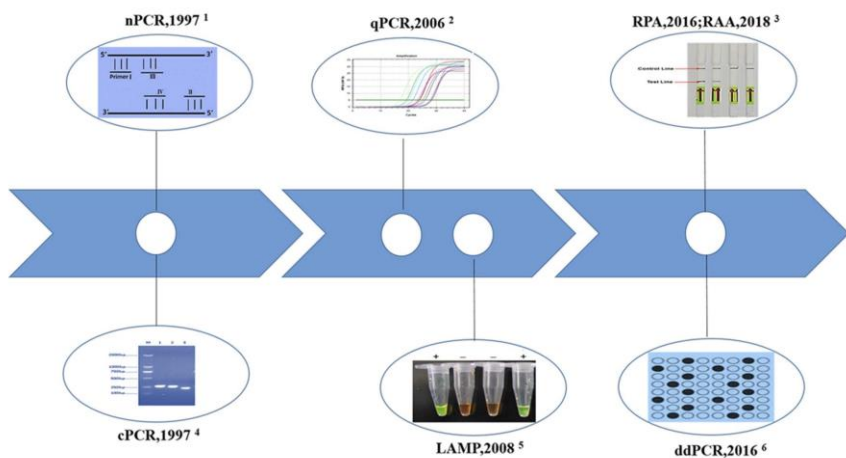
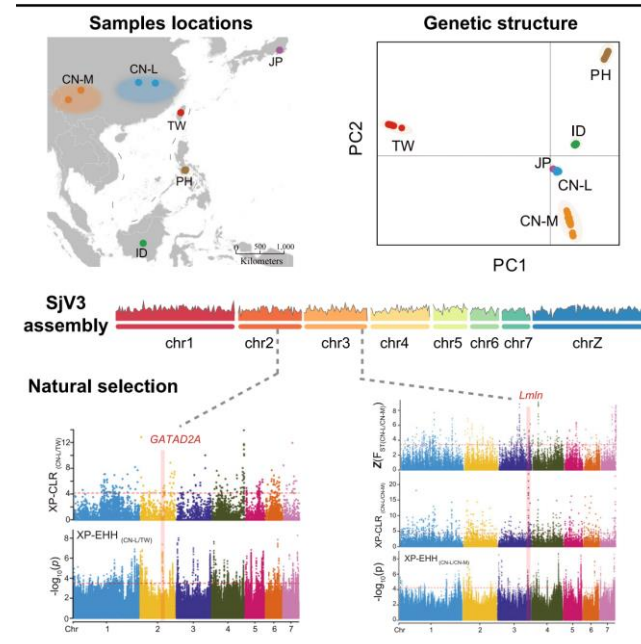


图 2-3 组合模型预测的钉螺扩散风险图

Figure 2-3 Snail diffusion risk predicted by combined model





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# Challenges exist to eliminate schistosomiasis



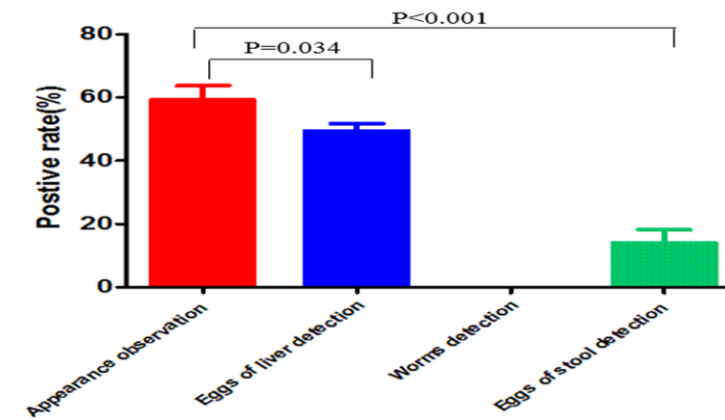
## ● Case finding and management:

- ◆ Decreased compliance rate of receiving examination and chemotherapy
- ◆ High risk population changed: Anglers, travelers, migrate workers
- ◆ Missing cases with light infection: low sensitivity of diagnostic tools
- ◆ Cases missed detection due to mobilization
- ◆ Cases with past infection did not cure or receive treatment



## ● Management of animals reservoir:

- ✓ Contradiction of economic development and animal herding
- ✓ Unknown the role of other animals in transmission

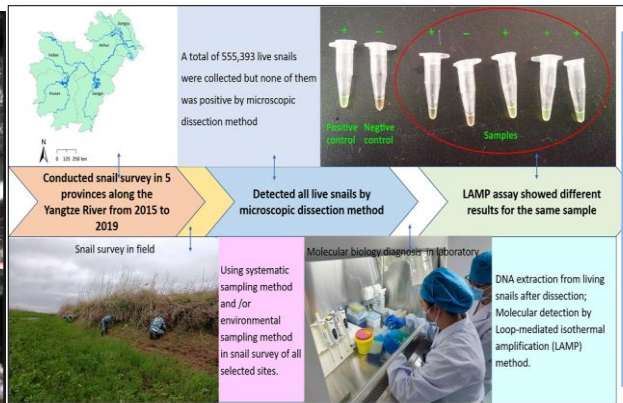
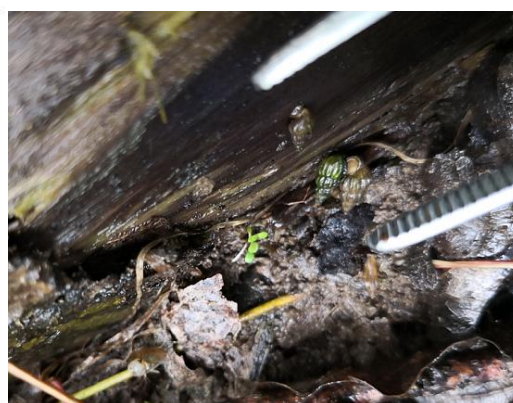
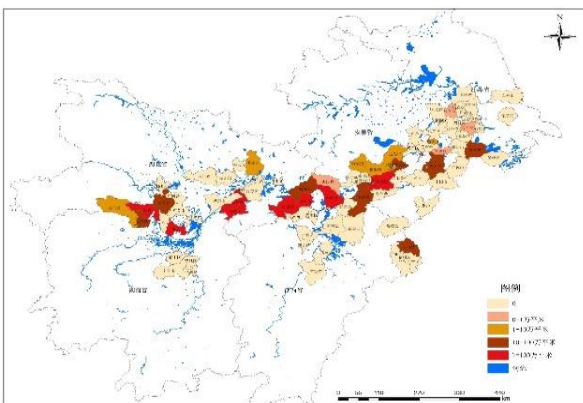


- **Wide distribution of snail habitats**

- ◆ Complicated environments of snail habitats
- ◆ Increased areas of snail habitats due to flooding
- ◆ Contradiction of ecological protection and mollusciciding

- **Surveillance response system needs be strengthened**

- ◆ Weak capacity on schistosomiasis diagnosis especially in hospital
- ◆ Lower sensitivity of surveillance tools
- ◆ Weak surveillance capacity of staff in transmission-interrupted or eliminated counties



Li et al. *Infectious Diseases of Poverty* (2022) 11:70  
<https://doi.org/10.1186/s40249-022-00995-9>

Infectious Diseases of Poverty

RESEARCH ARTICLE

Open Access

## Molecular evidence on the presence of *Schistosoma japonicum* infection in snails along the Yangtze River, 2015–2019

Yin-Long Li<sup>1,2,3,4</sup>, Hui Dang<sup>1,2,3,4</sup>, Su-Ying Guo<sup>1,2,3,4</sup>, Li-Juan Zhang<sup>1,2,3,4</sup>, Yun Feng<sup>5</sup>, Song-Jun Ding<sup>6</sup>, Xiao-Wei Shan<sup>7</sup>, Guang-Ping Li<sup>8</sup>, Min Yuan<sup>9</sup>, Jing Xu<sup>1,2,3,4\*</sup> and Shi-Zhu Li<sup>1,2,3,4</sup>





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# Prospect of schistosomiasis elimination

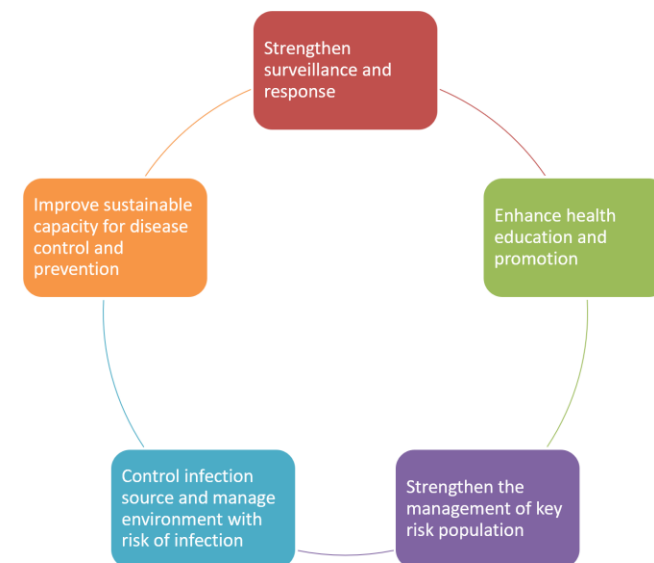
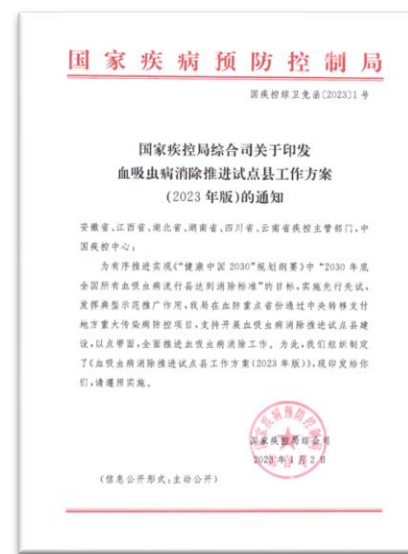
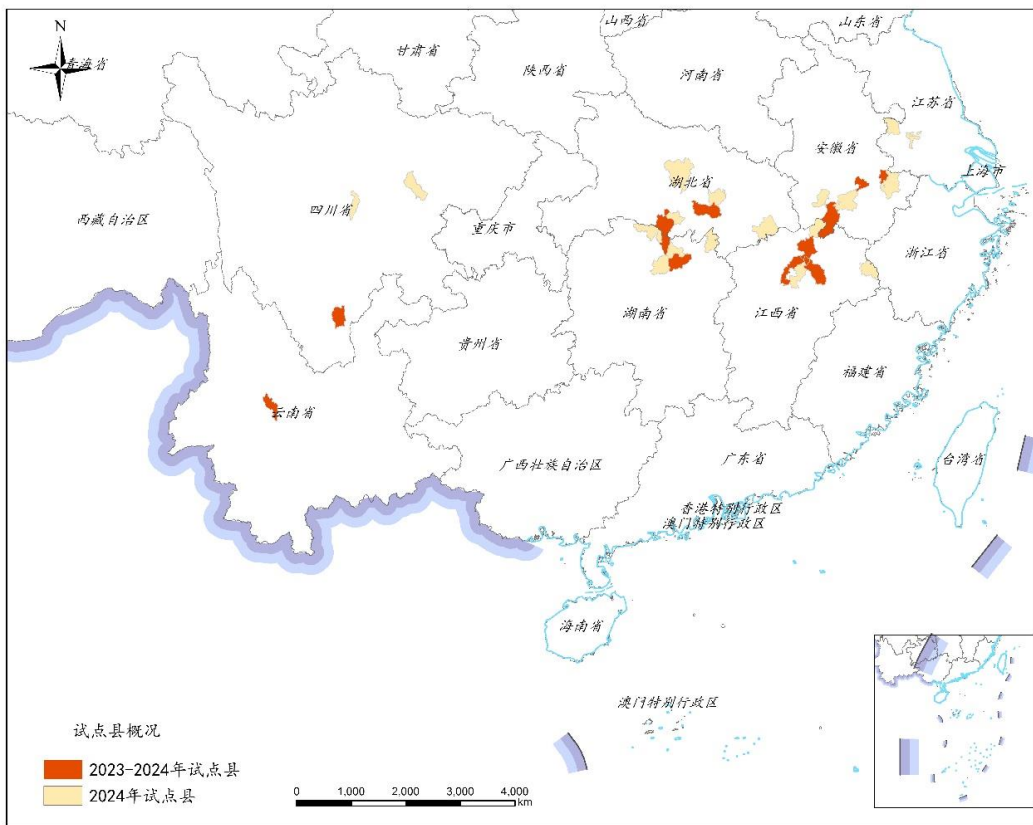


# Mechanism of Spring investigation an Autumn conference recovered in 2023



# Pilot counties to consolidate or accelerate elimination of schistosomiasis

- ◆ Focus on counties haven't eliminated schistosomiasis and accumulate experience and lessons
- ◆ 31 counties in 7 provinces







## Recommendations for future work

- Insist on the targets and improve the cooperation mechanism
- Guide by problem and conduct interventions precisely
- Enhance surveillance and early warning and manage the risk effectively
- Innovate technology and tools to improve the quality and efficiency of interventions
- Distill the Chinese experience and contribute Chinese wisdom or project

**THANK YOU FOR YOUR  
ATTENTION!**