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# The Dilemma of Hydropower Development In China

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# Outline

- Hydropower Development Plan in China
- WWF China's Dam Position
- WWF Cases and Stories: Promotion Sustainable Hydropower

## Development in Yangtze Basin



### Yangtze Basin:

- Population: 427 million
- 241 cities
- 14 cities >1 million population
- Average 1.8 times
- In Estuary Metropolis can reach 1,500 person/km<sup>2</sup>



# Hydropower Development Plan in China

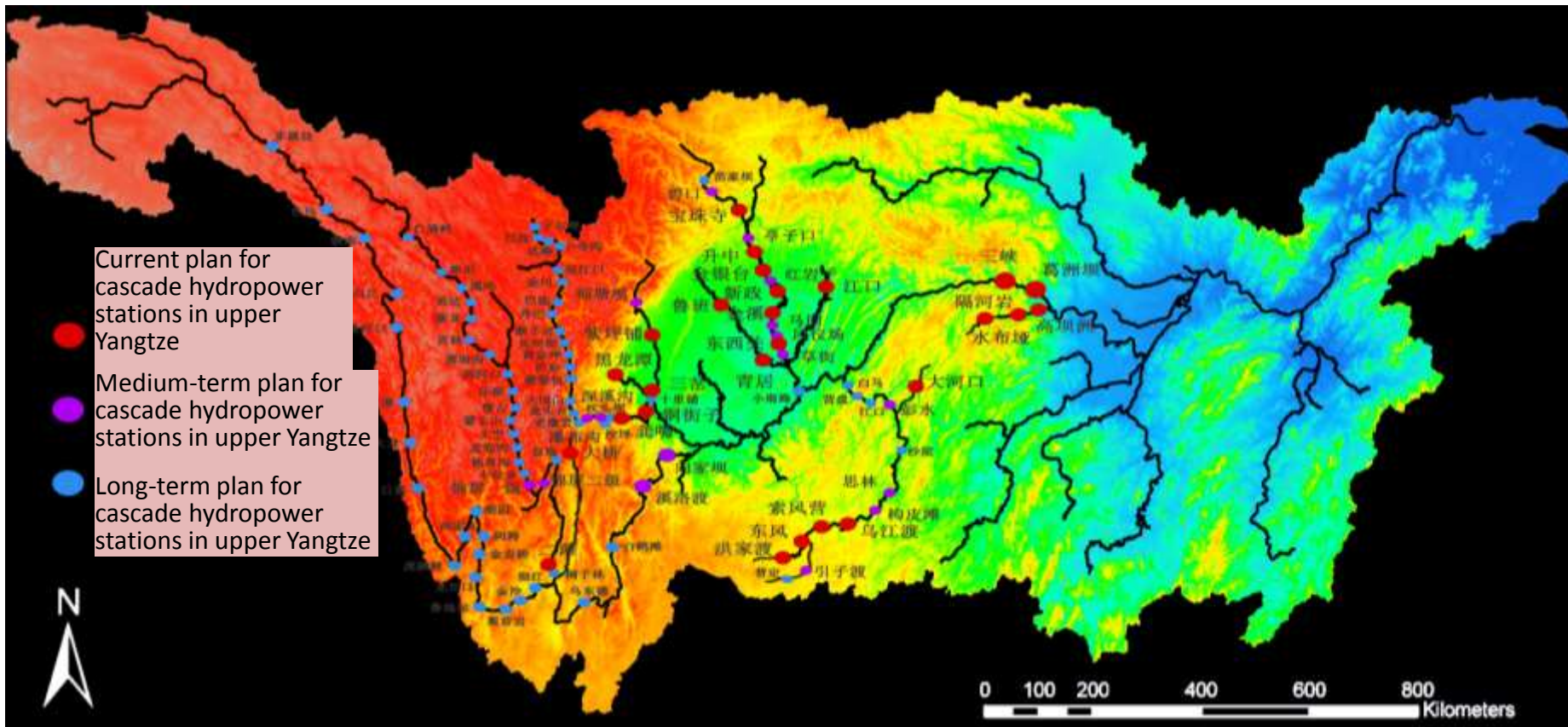


No.	Hydropower Bases	Installed Capacity (MW)	Capacity constructed and under construction (MW)/ Percentage
1	Jinsha River	58580	20503/35%
2	Upper Yangtzer River	33197	28217/85%
3	Yalong River	25310	14700/58.1%
4	Lancang River	25605	15700/61.3%
5	Dadu River	24596	7725/31%
6	Nu River	21420	0
7	Upper Yellow River	20032	14154.8/70.7%
8	Nanpan River,Hongshui River	14313	12680/88.6%
9	The northeastern three provinces	18690	6232/33.3%
10	Fujian, Zhejiang and Jiangxi Province	10925	8270/75.7%
11	Wu River	10795	10795/100%
12	West Hunan province	5902	462.5/7.8%
13	North Mainstream of the Yellow River	6408	1666/26%

**China's 13 Large Hydropower Bases Planning Map**



# Hydropower Development Plan in Yangtze





# Why Does WWF Focus on Dam Issues?

1. Provide services for human beings
2. Renewable energy
3. Major freshwater ecosystem threat

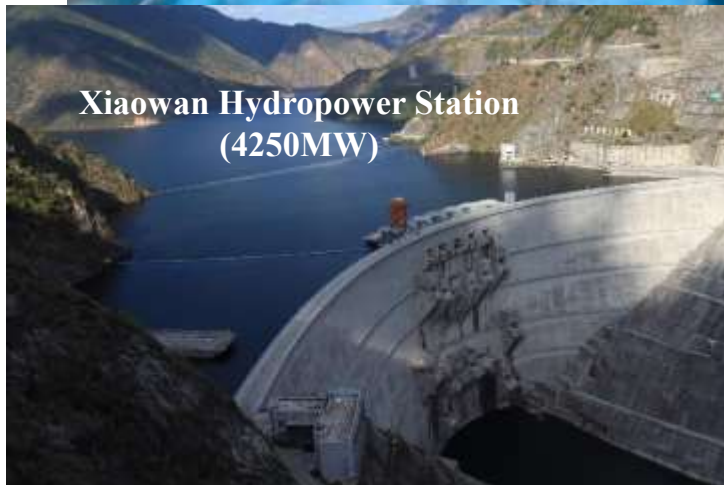
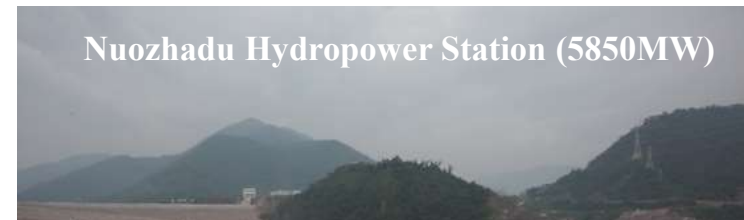






# WWF's Dam and Environmental Flow Project in China

- Started from 2006
- Approaches: science research, policy advocacy, demonstration and public commination
- Eco-regions : Yangtze River, Lancang River, Heilong River





# WWF China Dam Position



WWF advocates for

- (1) no dams to be built in, or affecting, high conservation value areas;
- (2) full consideration of alternatives before decisions are made to build new dams; and
- (3) the application of principles, tools and inclusive, transparent processes in order to make the best possible choices regarding the management of existing dams and development of new dams.





# Story 1: Chishui River



- **Free flowing:** the only virgin river in the middle and upper Yangtze River without dams
- **High biodiversity values:** National Upper Yangtze River Rare Fish Reserve, 136 fish species, 42 endemic fish species
- **WWF Project:** IRBM, PES, Water Stewardship, E-flow etc.
- **Partners:** UNDP, ADB, TNC etc.



# Study 2: Poyang Lake

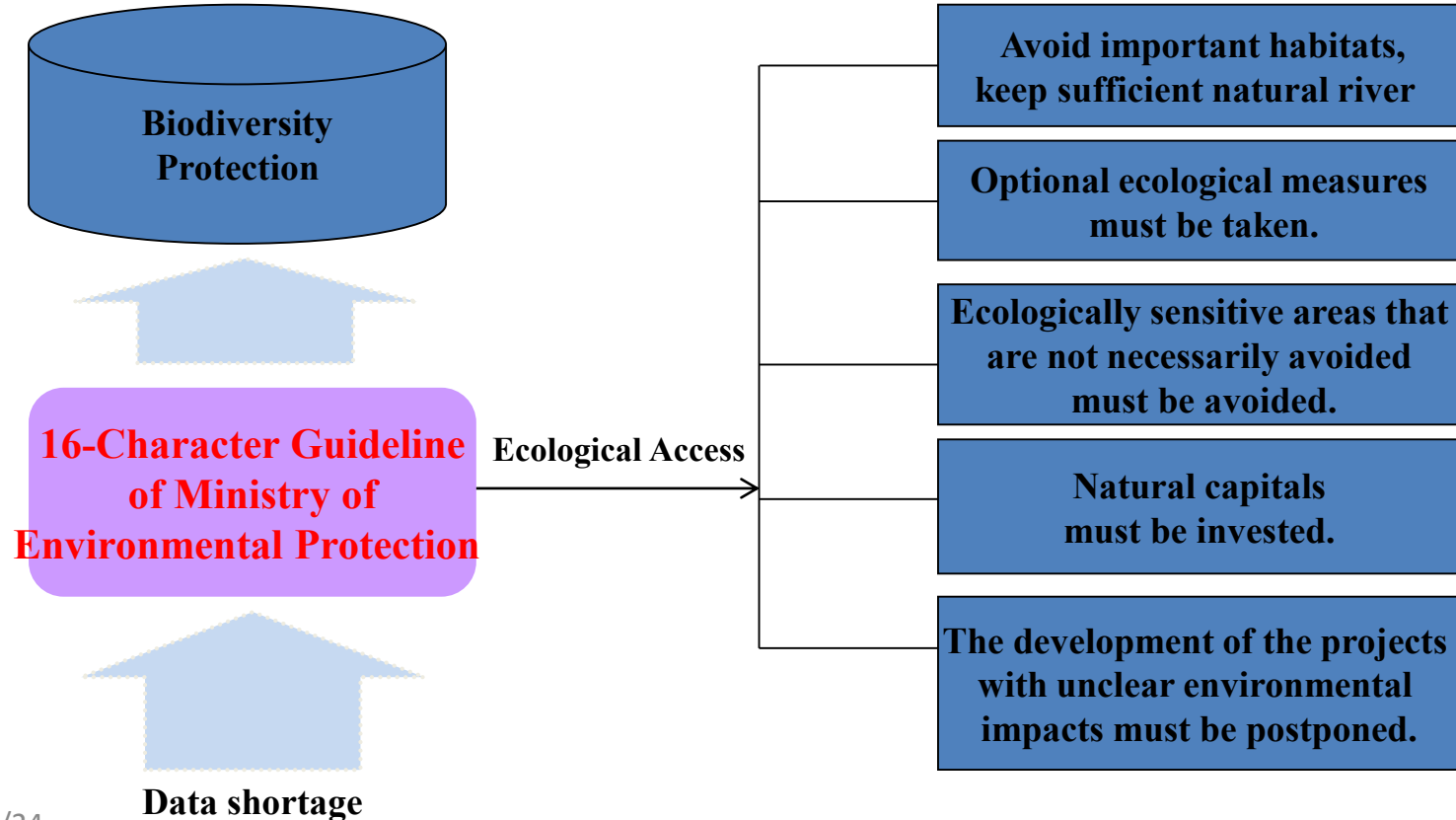
Maintenance of  
connectivity of freshwater  
ecosystem in the middle  
and lower Yangtze River





# The Enlightenment Thinking of Poyang Lake Story

To Radicate and Practice Environmental Protection Measures in Hydropower Development  
关于深化落实水电开发中的环境保护措施的通知（环法【2014】65号）







# Story 3: WWF's Cooperation with CTGPC

1. Economic benefits are remarkable, but environmental impacts are complex and serious.

2. All kinds of measures taken by China Three Gorges Project Corporation were not sufficient and failed to curb the Yangtze River basin aquatic biological resources recession and the water area ecological continual deterioration trend.

3. Since upstream development has not been over, currently it is difficult to make systematic overall evaluations of the ecological and environmental impacts of the Three Gorges Project.

- **Ecological operation**
- **Fishery Recovery (through breeding and releasing)**
- **HSAP Promotion**





# Solution for the Dilemma



Ecological values	Social /Ethical values	Economic values
Critical biodiversity and natural habitats conserved and restored.	Human rights respected and protected with special attention to the most vulnerable.	Land used efficiently and strategically to support inclusive and sustainable economic development.
Ecosystem services and ecosystem resilience maintained and enhanced.	Norms of good governance applied and weak governance addressed.	The value of natural capital and ecosystem services incorporated in land use decisions.
Environmental flows and water quality maintained and enhanced.	Equitable and transparent benefit sharing among all stakeholders is ensured (with special attention to the most vulnerable).	(Long-term) environmental, social, ethical and cultural impacts factored into land use decisions.
GHG emissions minimized and conversion of high carbon/methane stock areas halted.		

