Informatization promotes the ecological protection and high-quality development of the Yellow River basin

信息化助力黄河流域生态保护和高质量发展

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Outline 提纲

- Brief introduction of the Yellow River Basin
  黄河流域简况
- Analysis of high quality development strategy
  高质量发展战略分析
- The role of informatization
  信息化的作用
- Our practice
  我们的实践

The Yellow River is the second-longest river in China
the sixth-longest river system in the world at the estimated length of 5,464 km

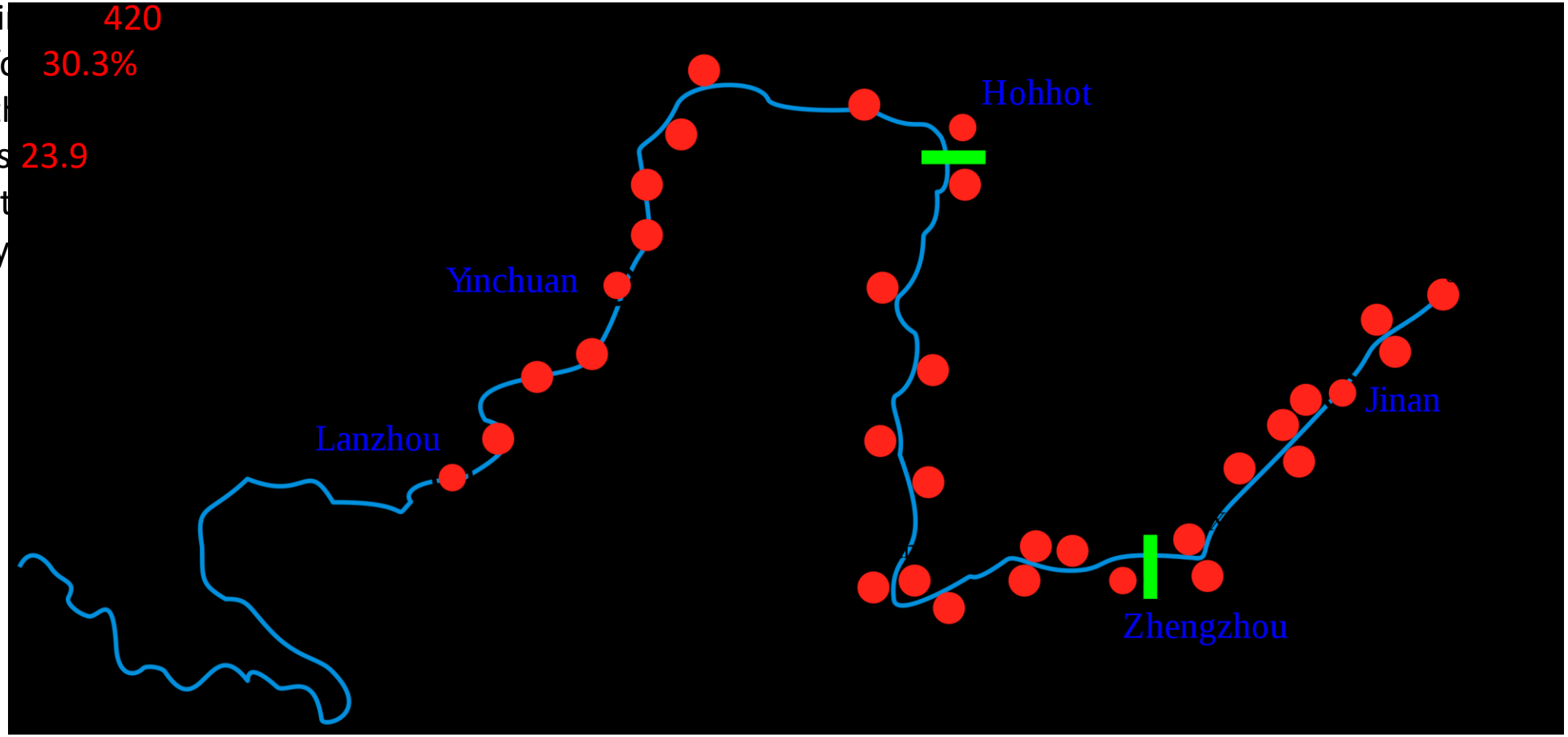
1.19 billion mu of Land area
179 million mu of cultivated land
153 million mu of forest land
419 million mu of pasture land

9 provinces
east–west extent 1,900 km
north–south extent 1,100 km
drainage area 795,000 km^2

Discharge m^3/s
- average2,571
- minimum1,030
- maximum58,000

Source and Upstream 3472KM	Midstream 1206KM	Downstream 786KM

By the end of 2018, the total population of the provinces in the Yellow River Basi 420 million, accounting fo 30.3% the country's total; th regional product was 23.9 trillion yuan, account 26.5% of the country



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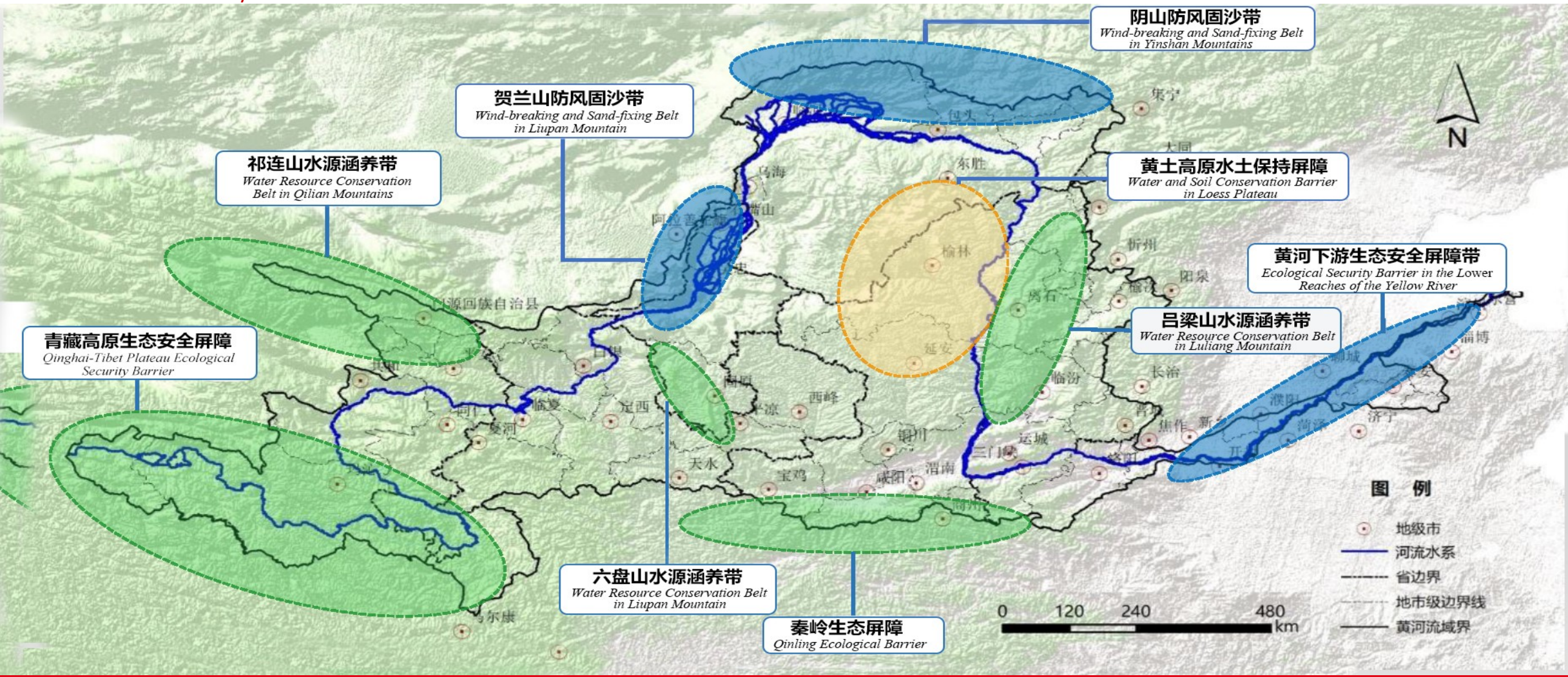
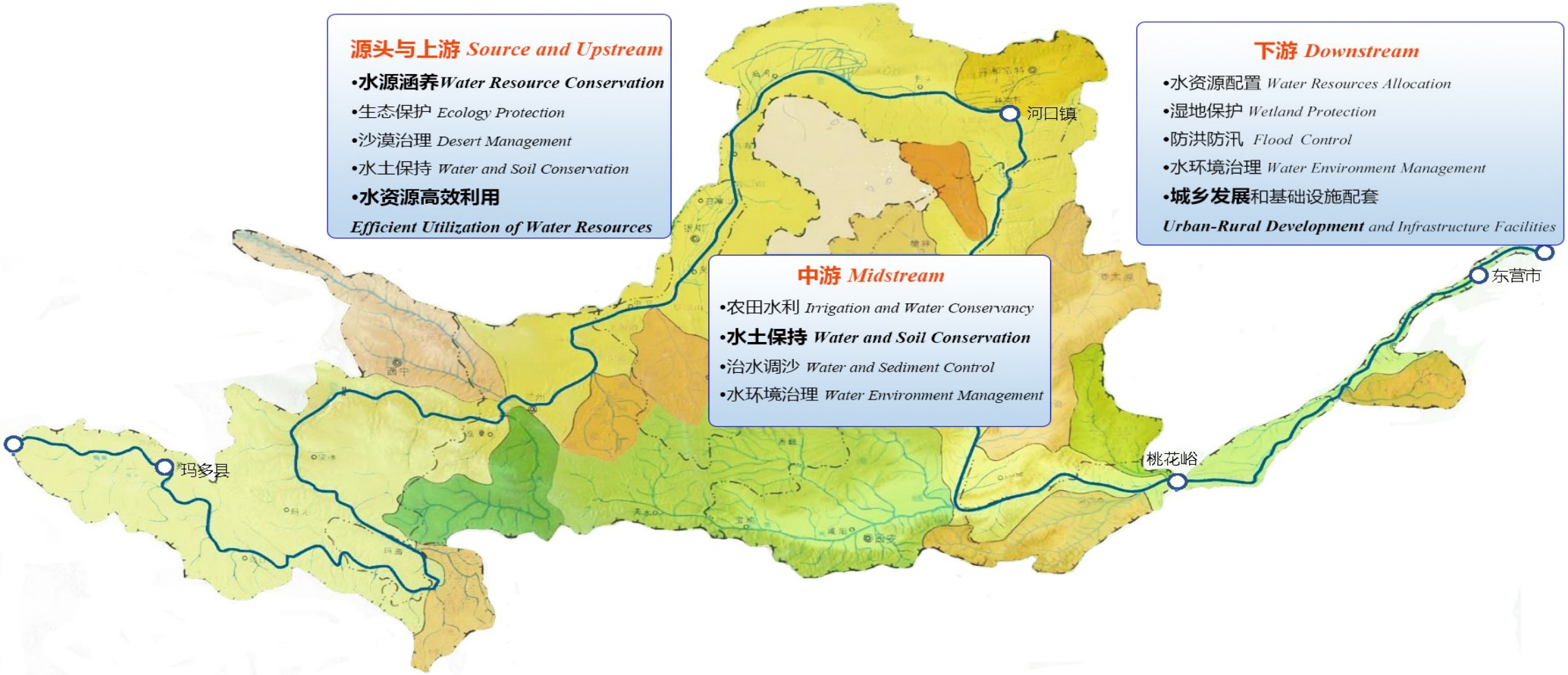
6 City groups

Important ecological barrier in China. It is an ecological corridor connecting the Qinghai Tibet Plateau, the Loess Plateau and the North China Plain. It has a number of national key ecological function areas, such as the three river source and Qilian Mountain. The Yellow River flows through the soil erosion area of the Loess Plateau and the five deserts and sandy lands. Along the river, there are Dongping Lake, Wuliangsuhai Lake and other lakes and wetlands, and the estuarine delta wetland has biodiversity.



Protection and Development



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Major national strategy

"The protection of the Yellow River is critical to the great rejuvenation and sustainable development of the Chinese nation," Xi said on Sept 18, 2019, while chairing a symposium during an inspection tour of Henan province, adding that it is a major national strategy.

President Xi Jinping pointed out

- Problem
  - Flood risk is still the biggest threat to the basin.
  - The ecological environment is fragile.
  - The situation of water resources guarantee is grim.
  - The quality of development needs to be improved.

- Main task
  - Strengthen ecological and environmental protection.
  - Ensure the long-term stability of the Yellow River.
  - Promote the conservation and intensive use of water resources.
  - Promote the high-quality development of the Yellow River Basin.
  - Protect, inherit and promote the Yellow River culture.

Why we need informatization?

- The problems of the Yellow River Basin have the characteristics of basin-based, systemic, and long-term characteristics.
  - To know the complex situation of the basin, a comprehensive multi-element information system covering the basin must be established for the development planning, ecological protection, industrial upgrading, supervision and management and decision support of the basin
  - Informatization promotes the modernization of the Yellow River governance system and governance capabilities

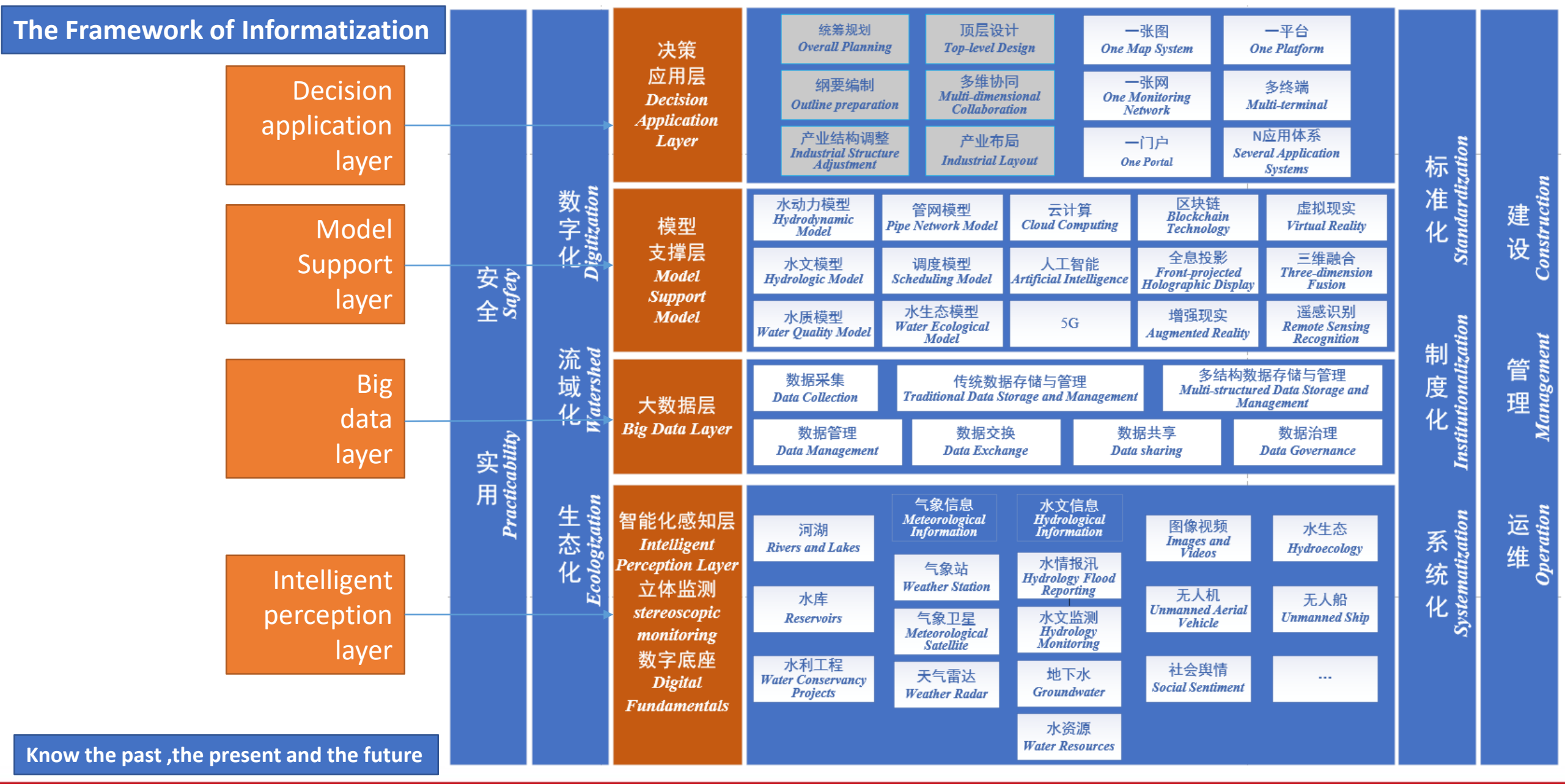
- At present, China's per capita GDP exceeds US$10,000, and the development model needs to be changed.
  - Priority is given to the development of service industries, high-tech industries, eco-environment-friendly industries, and digital economy and new-generation information technology.

The Framework of Informatization

Decision application layer	Use artificial intelligence to evaluate the economic and social benefits of the Yellow River Basin, and give suggestions for promoting ecological protection and high-quality development in the Yellow River Basin.
Model Support layer	Establish mathematical models, deep neural network models, implicit correlation analysis models, three-dimensional map modeling, etc., to conduct multi-dimensional monitoring and analysis of the ecology, economy, culture, industry, tourism, and life of the Yellow River Basin Achieve online convergence, online monitoring, and online Processing and other functions provide big data services
Big data layer	Use spatial integration data, build a data center, and integrate multi-source data to form a three-dimensional ecological environment big data collection system of the whole river basin, all time , and all elements. Integrated monitoring of the ecological environment of the Yellow River Basin.
Intelligent perception layer	All kinds of data, such as hydrological monitoring stations, meteorological monitoring stations, dam safety monitoring stations, and aerospace remote sensing and aerial remote sensing, can be performed in real time collection and analysis.

Know the past ,the present and the future

The Framework of Informatization



Know the past ,the present and the future

Types of Informatization

01

Water resources

Protection
Water supply
Water saving
Block sand and change water

02

Water environment

River Chief System
Water quality warning
Water environment demonstration

03

Hydrology

Monitor
Forecast
Groundwater
Hoh Xil Emergency Monitoring

04

Water engineering

South-to-North Water Diversion
Han to Wei Water Diversion

QingHai

- National groundwater monitoring project (water conservancy)
- Emergency hydrological monitoring for drainage of Hoh Xil Salt Lake
- Construction of early warning system for flood control in rural areas

Gansu

- Analysis and forecast of flood in small watershed (36 districts and counties)
- hydrological and water resources telemetry

Ningxia

- Groundwater data compilation service

SIchuan

- IOT sensing equipment related to flood and drought disaster prevention

Inner Mongolia Autonomous Region

Chifeng water information center platform construction project
Hydrological and water resources telemetry
Groundwater monitoring information receiving and processing service
Platform for Erdos sand retaining and water exchange pilot project

Shanxi

Water resources (environment) Demonstration Report
Hydrological monitoring system for medium and small rivers
Groundwater monitoring

Shaanxi

Intelligent monitoring and management of Sanhekou water control Hub
Automatic control system engineering of Fugu County Water Supply
River chief system (Ansai, Zhidan, Wuqi, Zichang, Xixian New District, etc.)

Henan

Supervision and protection system of water resources in the Yellow River Basin
Yellow River water dispatching and water quality forecast system
South to North Water Diversion Project (water quality monitoring ,drainage pump station, intelligent access control, Dispatching hall)

Shandong

Urban hydrological collection (Jiaozhou, Jining, Rizhao)
Heze agricultural water saving reconstruction project of Yellow River irrigation
Jinan high tech Zone smart water platform


美丽中国
Beautiful China
Thank you

谢谢观赏！

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