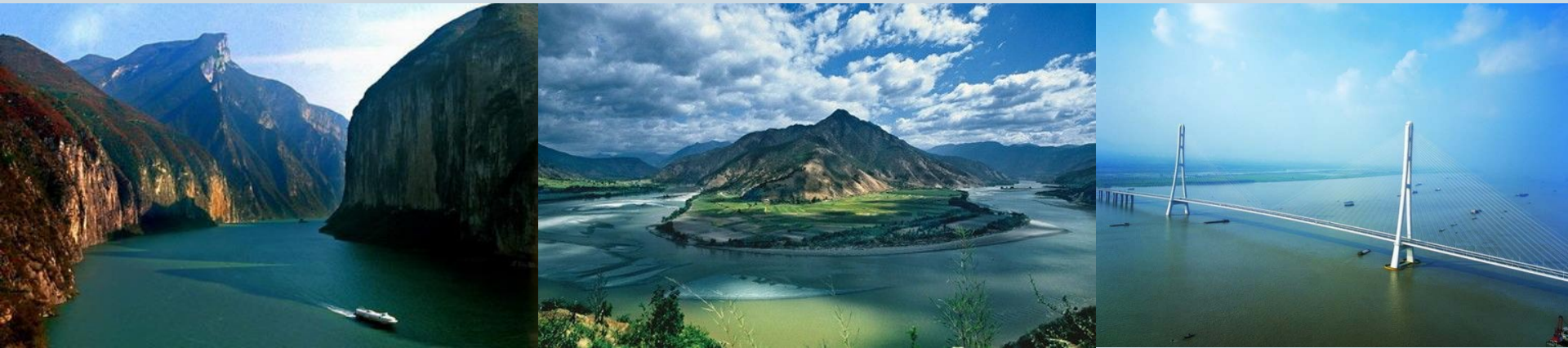


The Development of IENC in China

WTI, Weijun Fei



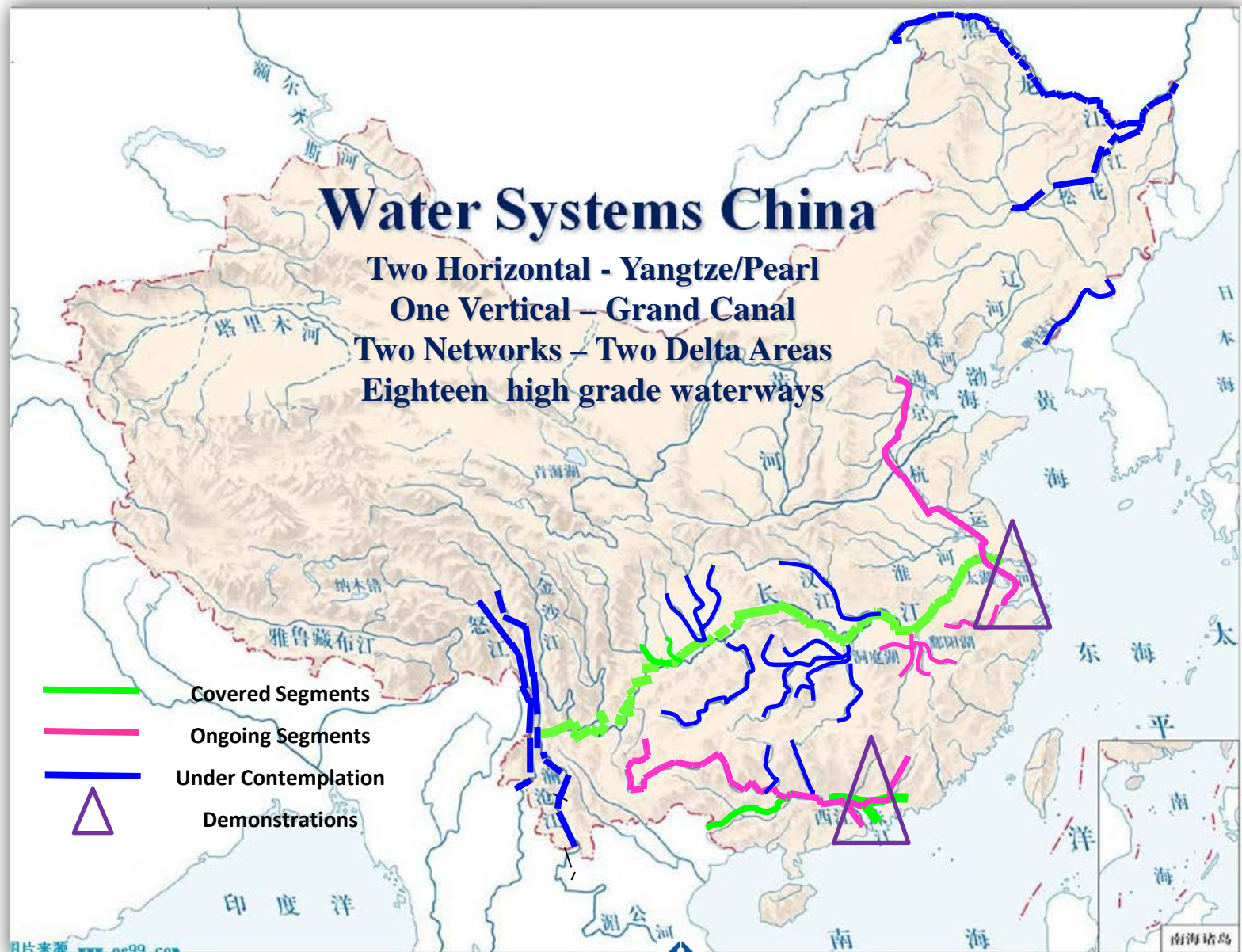
China Waterborne Transportation Institute

Contents

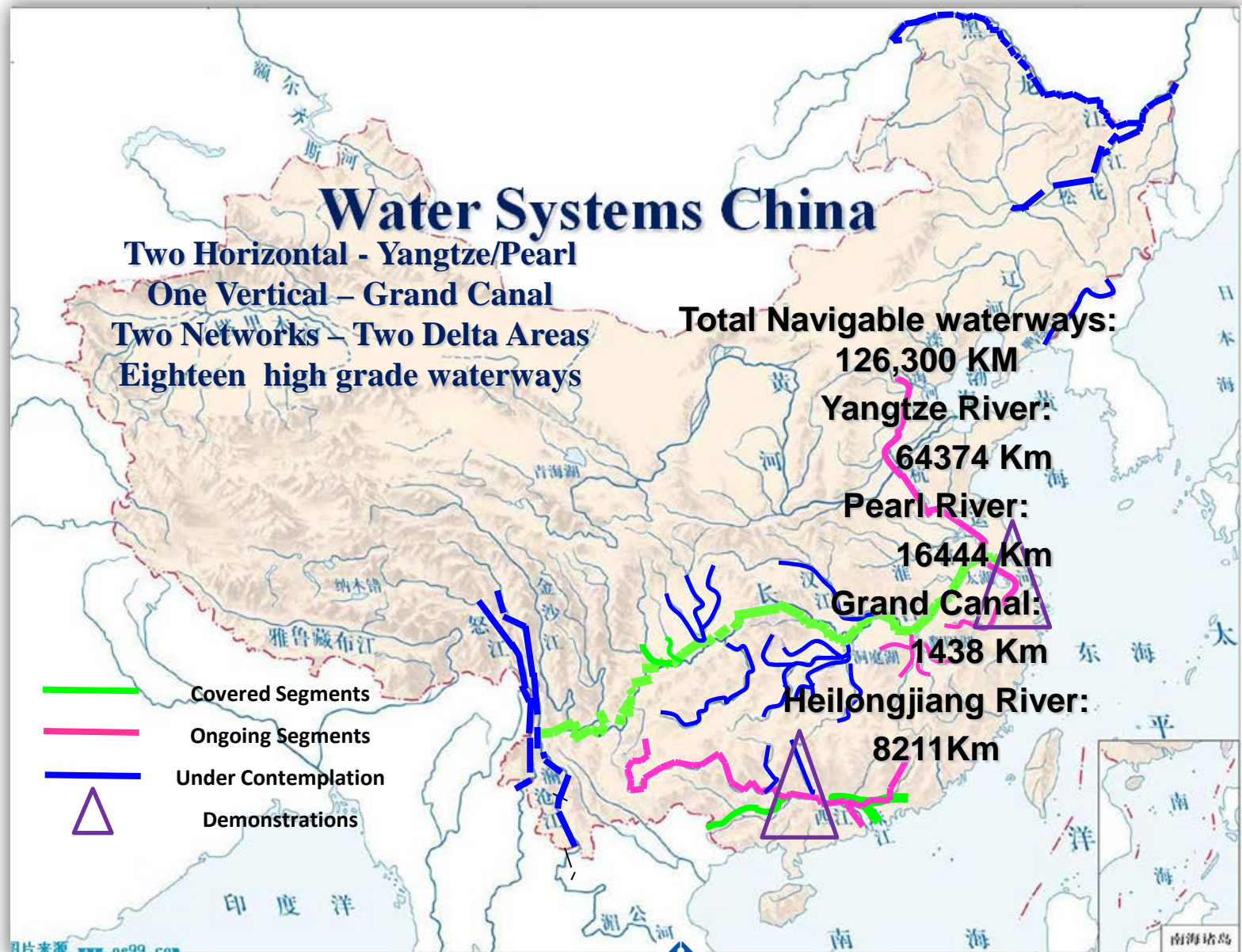
- **Development of IENC in China**
- **IENC Management System**
- **IENC Standardization and Application**
- **Development Suggestions of IENC Standards**



China IENC Development and Application



China IENC Development and Application



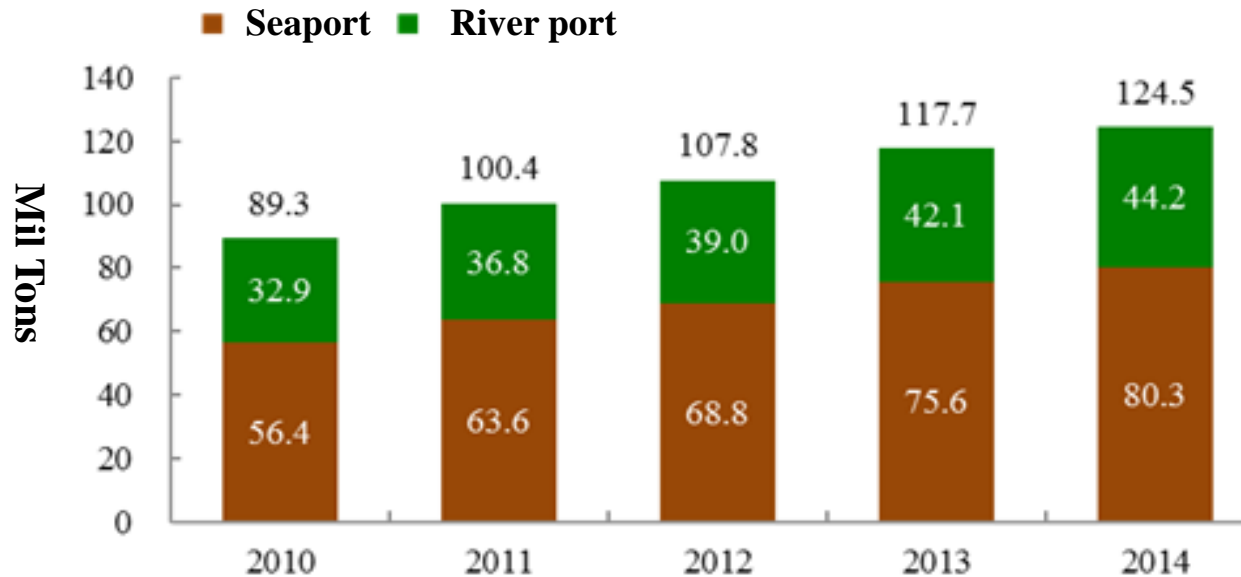
Inland Vessels

158,300 Vessels with 112.75 Mil DWT in 2014

807.7 Thousand Passengers in 2014

257.8 Thousand TEU Container Positions in 2014

Port Throughput in China

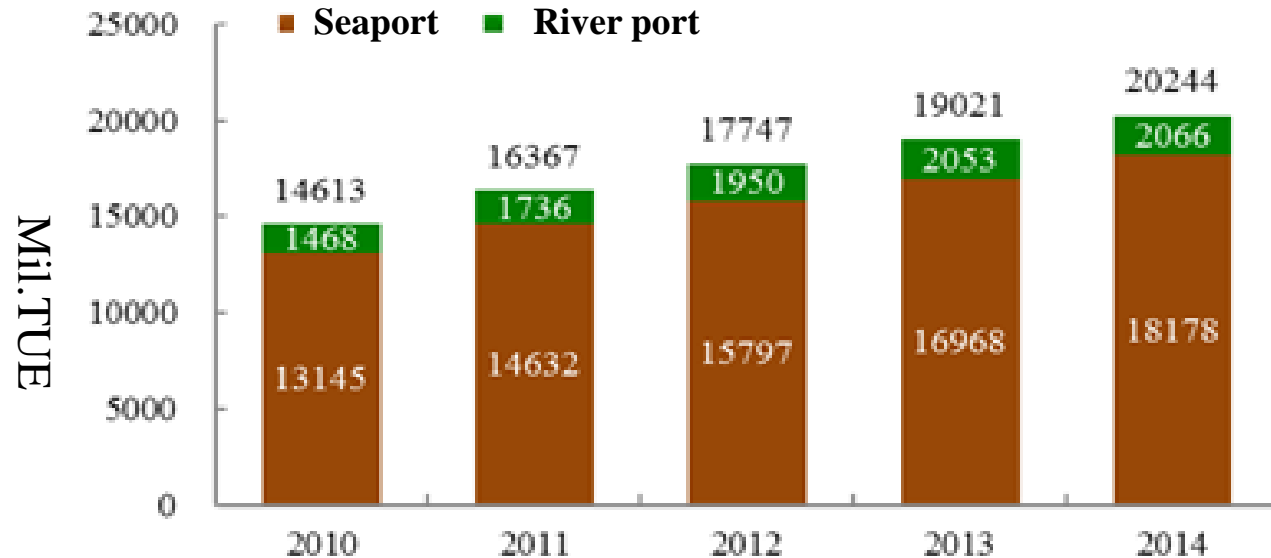


Port Throughput from 2010 to 2014 in China

124.52 Mil Tons Throughput in 2014, up 5.8%.

—— **Seaport: 80.33 Mil Tons with a 6.2% increase ;**
—— **River port: 44.19 Mil Tons with a 5.1% increase.**

Container Throughput



Port Throughput from 2010 to 2014 in China

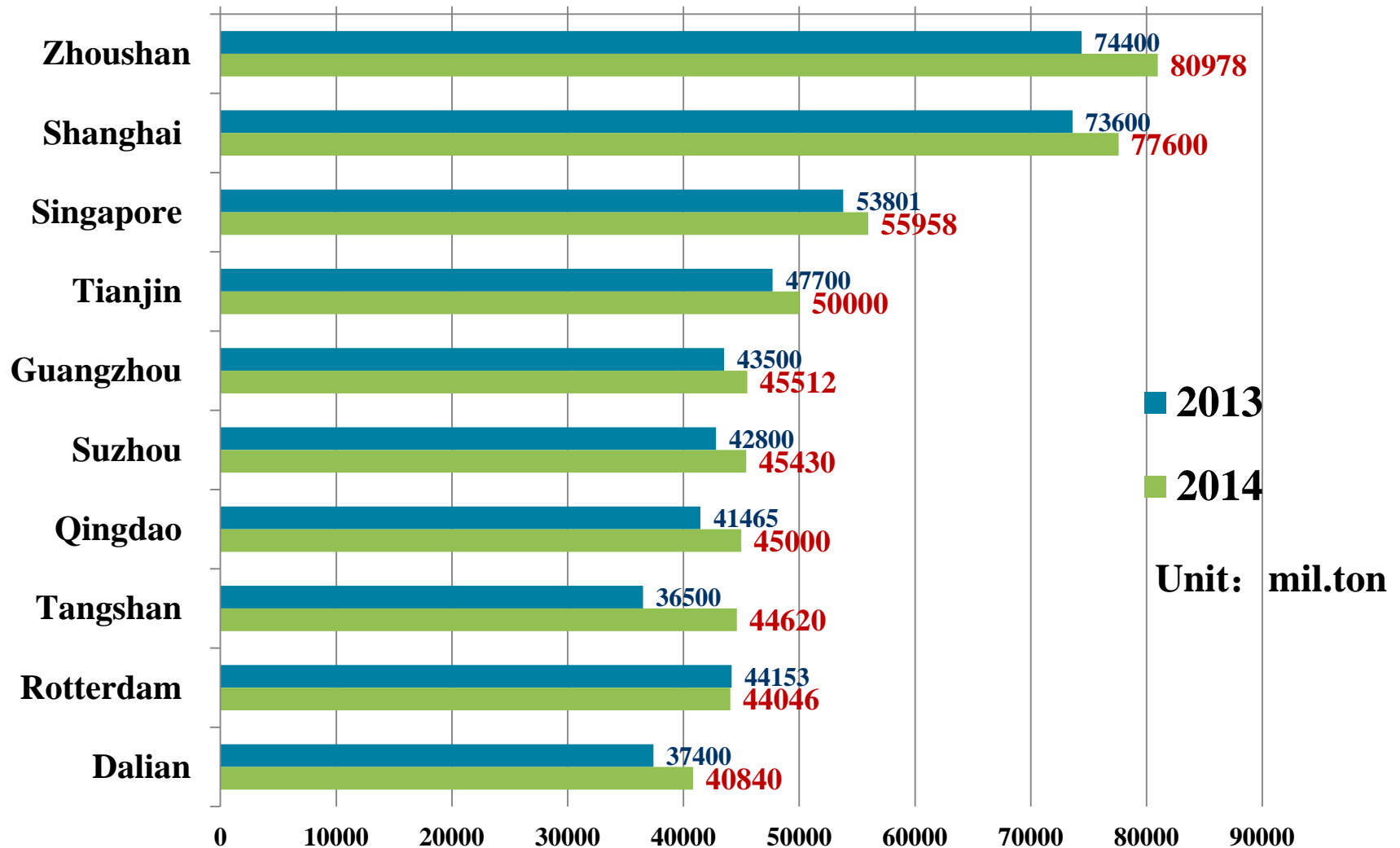
202 Mil TEU Throughput in 2014, up 6.4%.

—— **Seaport: 182 Mil TEU with a 7.1% increase ;**

—— **River port: 20.66 Mil TEU with a 0.6% increase.**

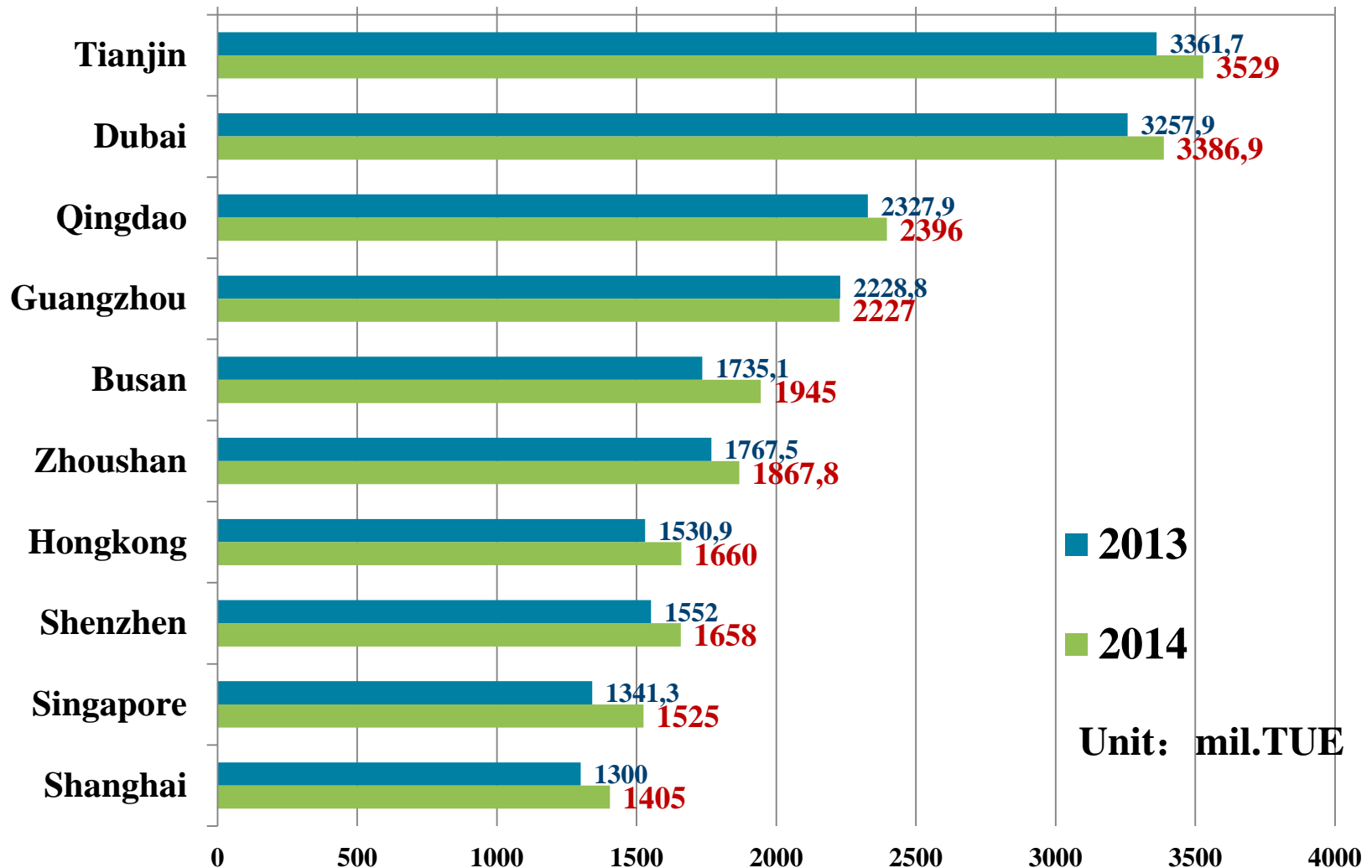
2013/2014 Throughput of the Top 10 Ports

Throughput Statistic for Ports in 2013/2014



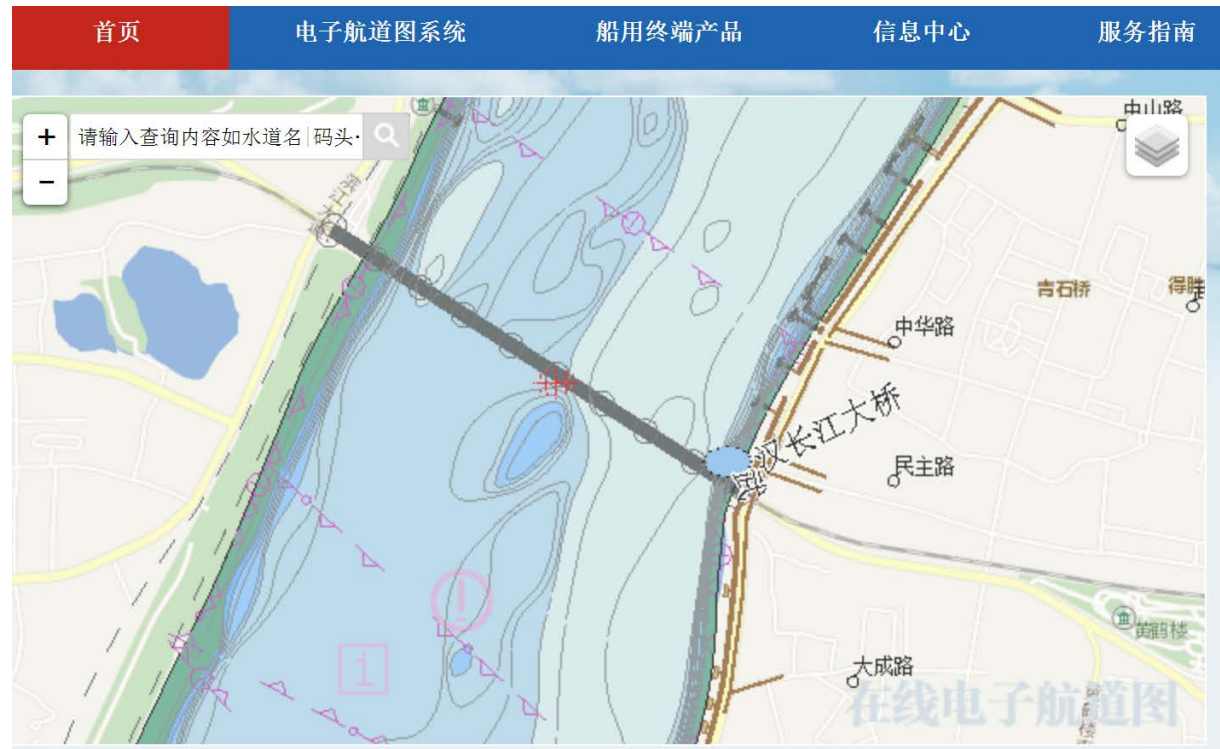
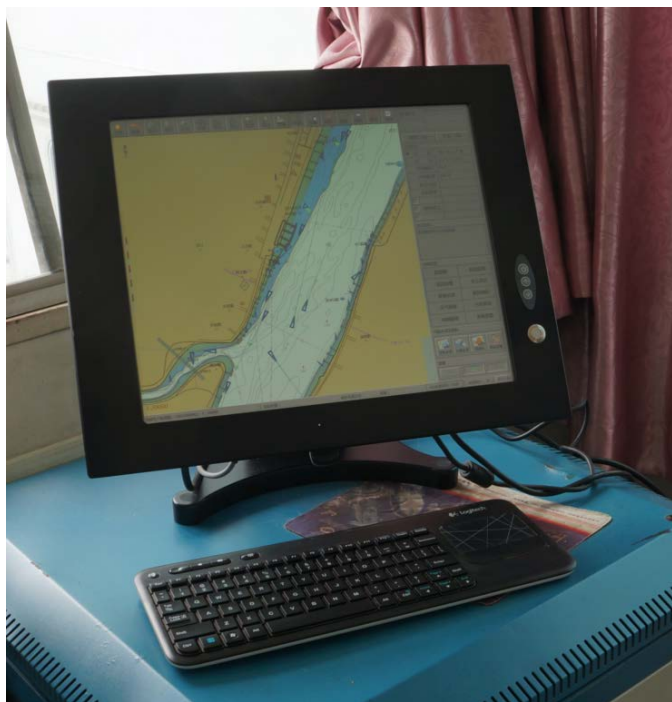
2013/2014 Container Throughput of the Top 10 Ports

Container Throughput Statistic for Ports in 2013/2014

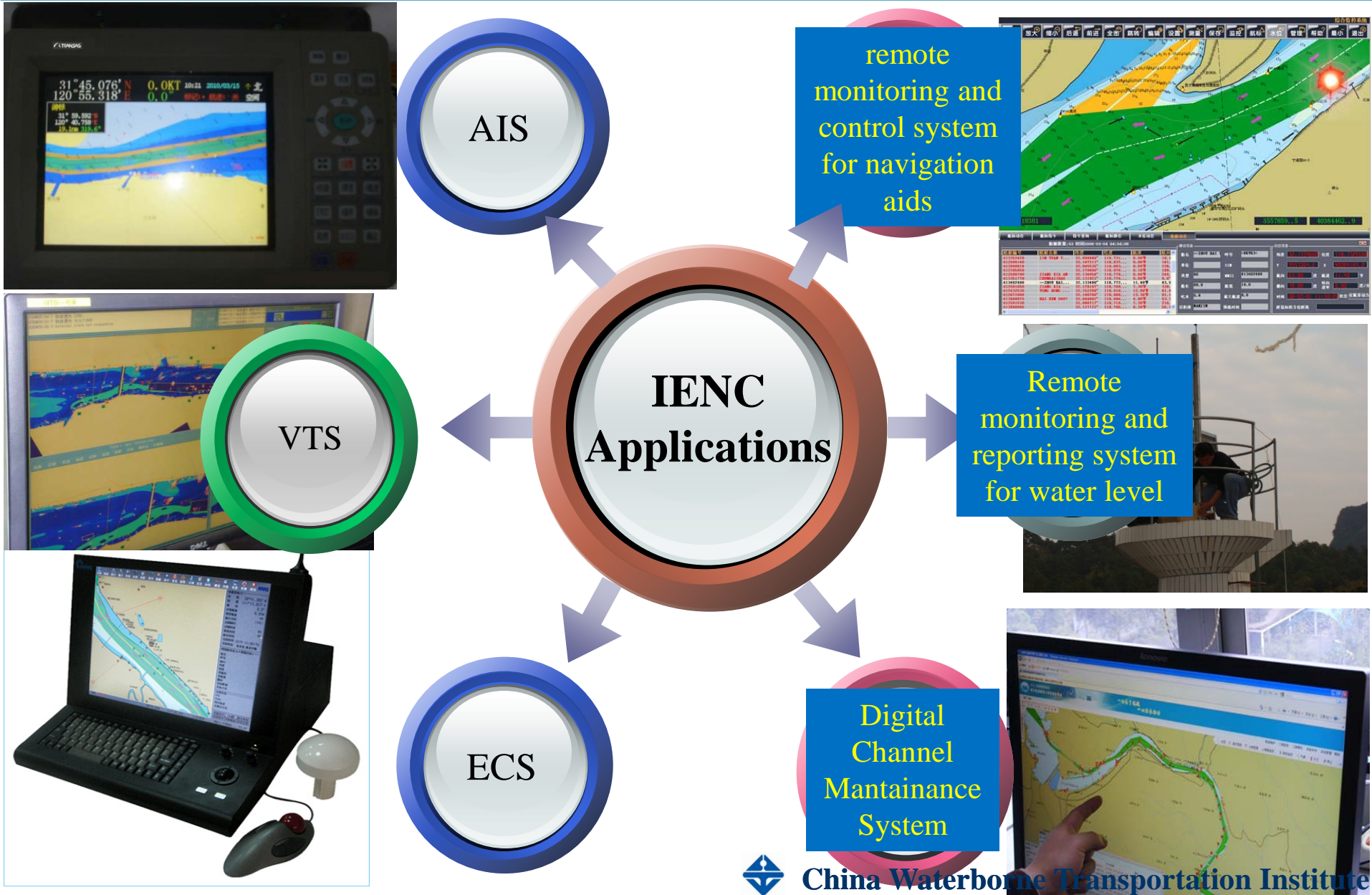


Development and Application of IENC in China

- **IENC System Version updated from v1.0 to v3.0**
- **Terminal Version and Internet Version of IENC both available**



IENC Standardization and Application



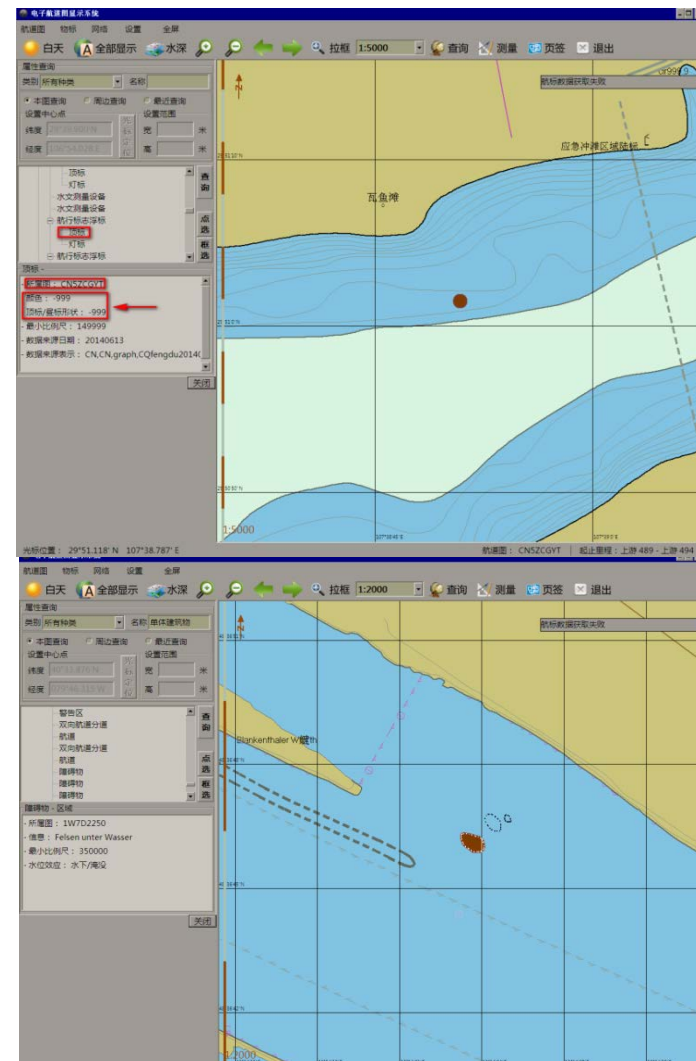
IENC Management System

- **National Administration Agency**

- ✓ **Ministry of Transport of the P.R.C.**
- ✓ **IENC Work Group in China**

- **Local Authority**

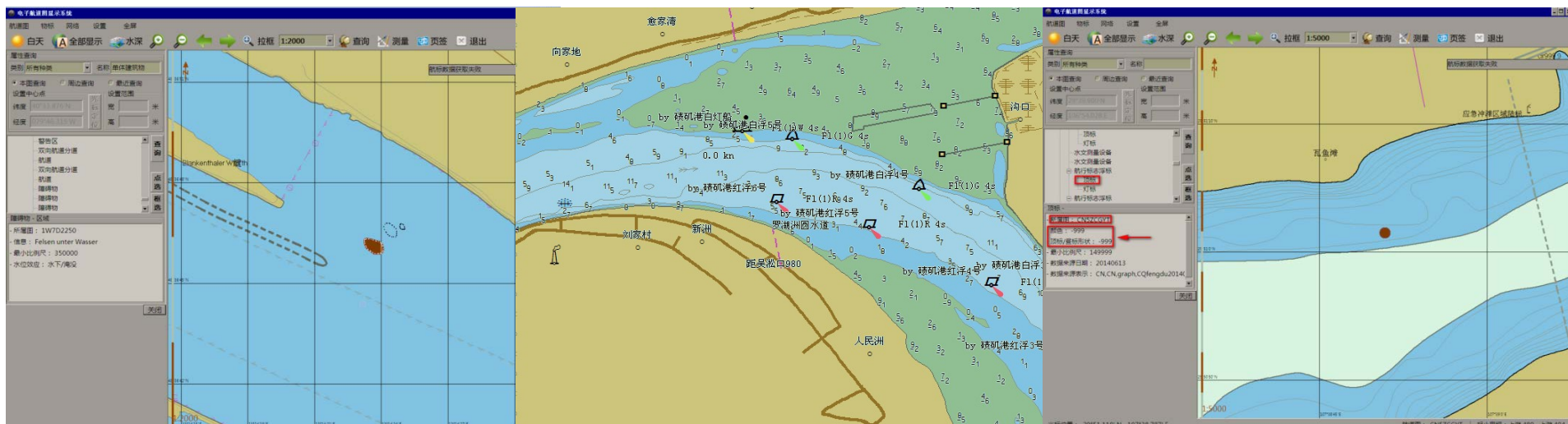
- ✓ **Heilongjiang River Basin**
- ✓ **Yangtze River Basin**
- ✓ **Pearl River Basin**
- ✓ **Grand Canal**
- ✓ ...



IENC Working System

● IEHG Work Group in China

- ✓ O.C. — Deputy Director: Weijun Fei
- ✓ Secretariat — WTI
- ✓ Technical Support — Port and Shipping Agency, Scientific Research Institute



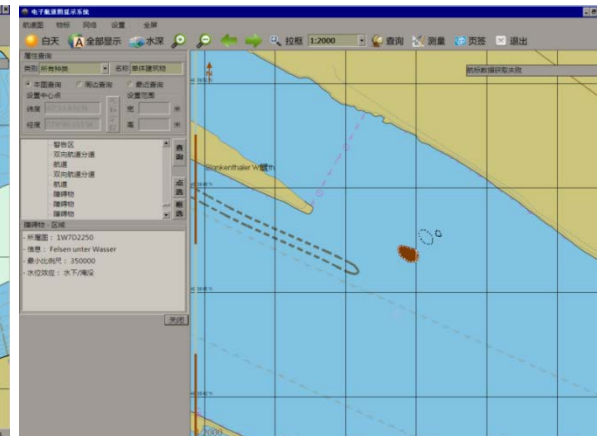
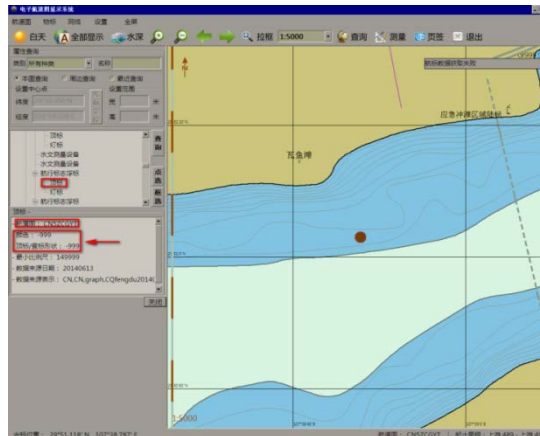
IENC Inspection Mechanism

- Confidential Technical Inspection

- ✓ Classified Features and Attributes Inspection

- Content Inspection

- ✓ Data Inspection: Navigation Aids, Channel Topography, Buildings , etc.
- ✓ Accuracy Inspection
- ✓ Quality Inspection



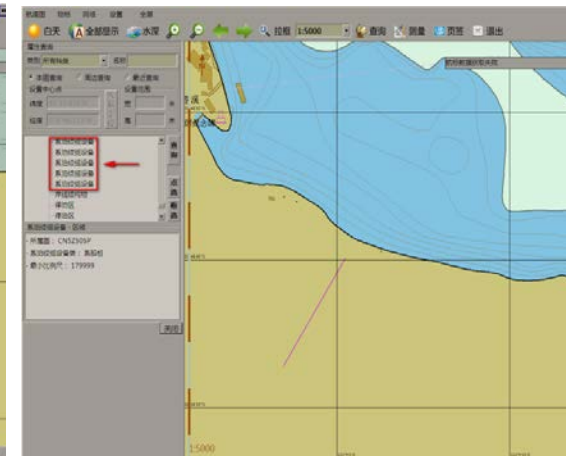
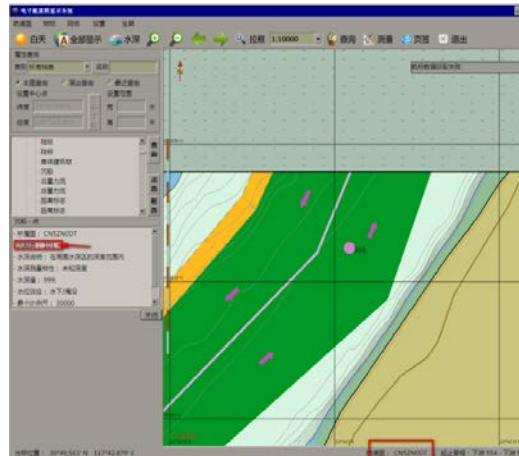
IENC Inspection mechanism

● Laws and Regulations for Inspection

✓ Laws and Regulations in China:

- Law of the People's Republic of China on Guarding State Secrets
- Surveying and Mapping Law of the People's Republic of China
- Management Regulations of Map Compilation and Publication of the People's Republic of China

✓ IENC Standards



IENC Development in China

● Policy

- ✓ The “12th Five Year” Transportation Informatization Development Plan of Highway and Waterway indicated that: the Digital Channel Construction for Yangtze River, the Western River, Grand Canal, Yangtze River Delta, Pearl River Delta etc. must be implemented, as well as the release and application of the IENC.

● Organization and Technical Support

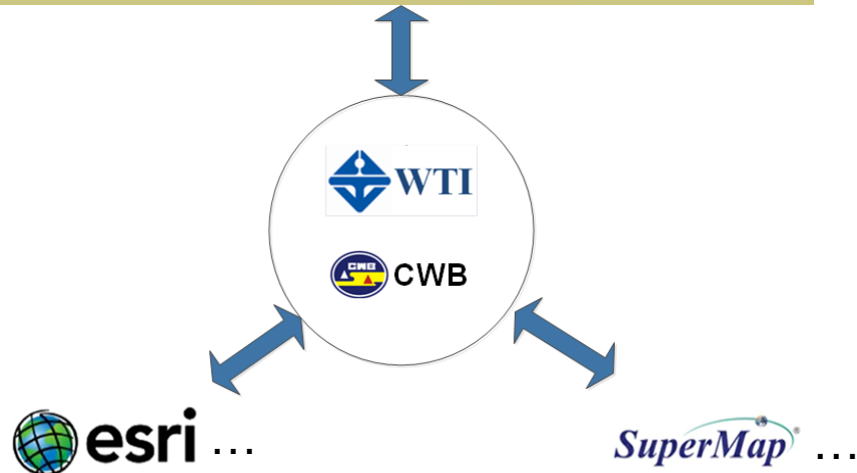
- ✓ IENC Work Group in China: Responsible for the top level design and standard revision of IENC



IENC Development in China

● Exchange and Cooperation

- ✓ Cooperate with IENC Software Companies, e.g. SuperMap GIS, ESRI
- ✓ Welcome other potential Cooperators.



IENC Standardization and Application

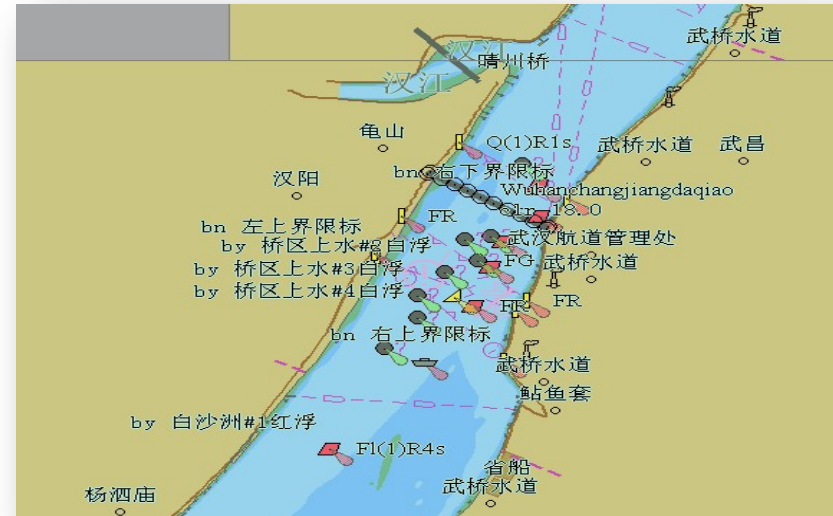
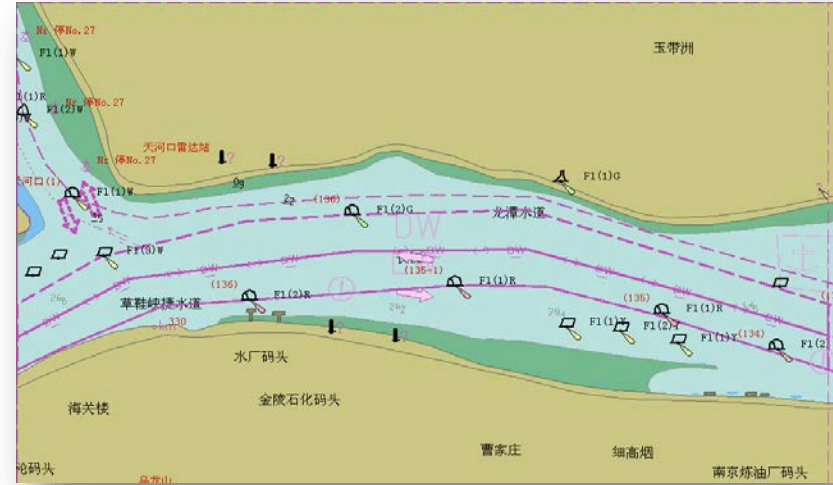
IENC Version in used:

● Version 3.1

- **Three Gorges Section**
- **Jialing River, Xiang River**
- **Part of the Western River**

● Standards for Yangtze River Basin

- **Trunk Line of Yangtze River**
- **In Revision**



IENC Standardization and Application

Uncompleted:

- **National Standards — IENC Engineering Technical Standard**
 - ✓ **Team Leader: Weijun Fei**
 - ✓ **Principle: Combined with China's Reality, Compatible with the International IENC**
 - ✓ **Structure: 8 Parts**
- **Professional Standards — IENC Technical Regulation**
 - ✓ **Structure: 11 Parts**



Standard Structure

National Standards:

- 1. General Issues**
- 2. Terms**
- 3. Basic Rules**
- 4. Feature and Attribute**
- 5. Feature Code**
- 6. Data File**
- 7. Application Profile**
- 8. Data Inspection**

Professional Standard also focus on:

- Display**
- Data Protection**
- Service and Application**

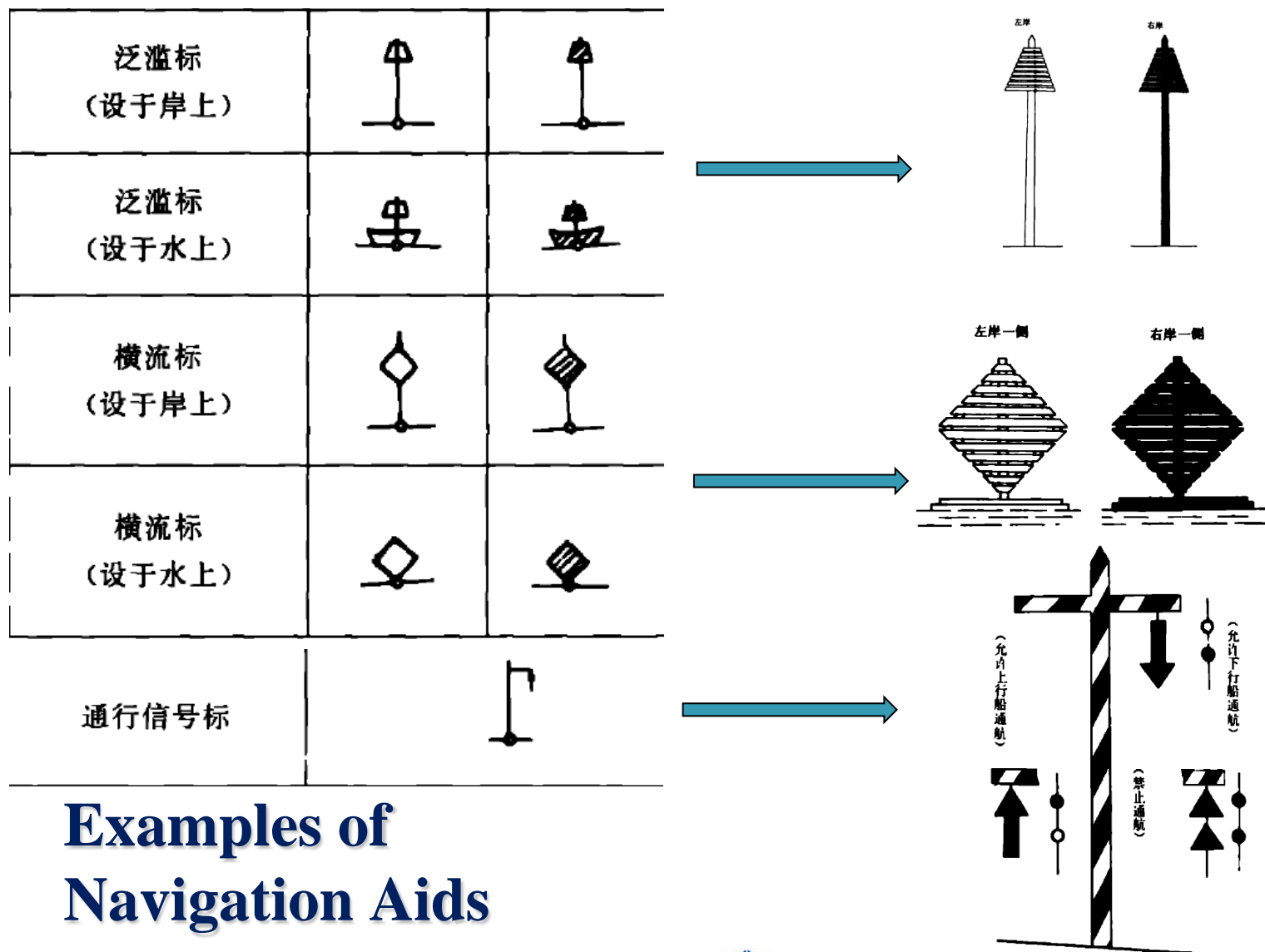


Suggestions for IENC Development

- **Some Inconsistency between Chinese IENC Standard and International IENC Standard**
 - ✓ **Part of the Features are different, esp. for Navigation Aids (discussions later at the meeting)**
 - ✓ **New Generated Feature Catalog: Some Special Features are needed in China, such as TSSLPT, TSELNE, TSSBND, etc, which must also be included in the S-101 Standard and IENC**
- **Different Application Standards and Language Problems are existed for the International Border River**



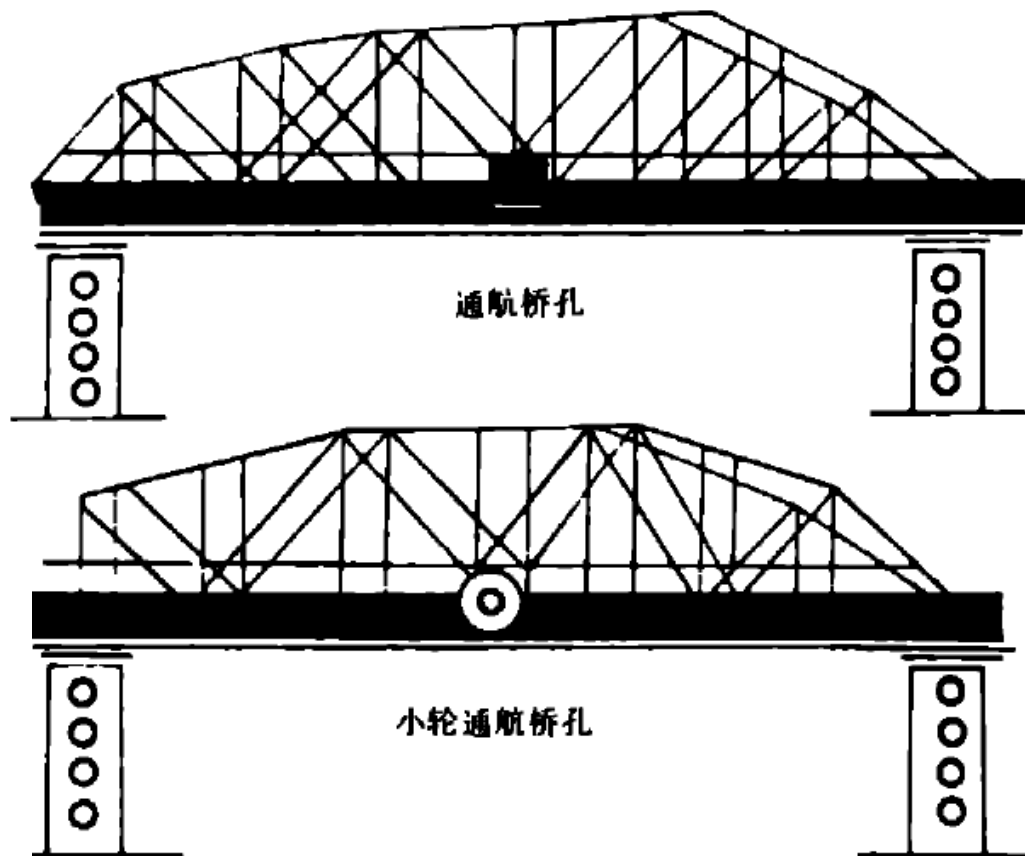
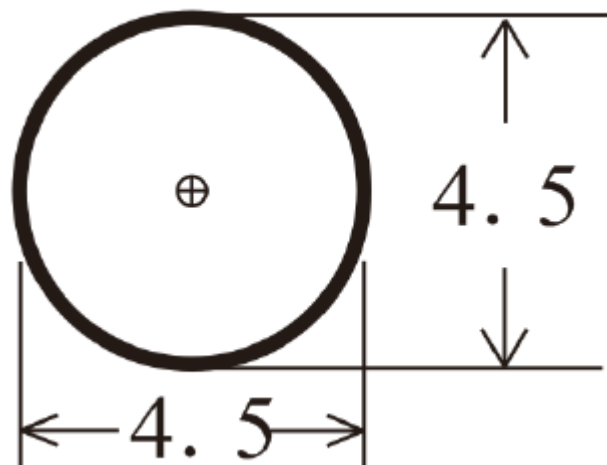
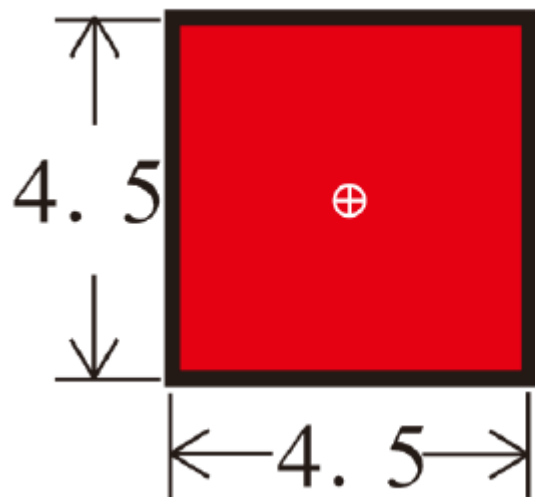
IENC Standardization and Application



Examples of Navigation Aids



IENC Standardization and Application



桥涵标

**Examples of
Navigation Aids**





China Waterborne Transportation Institute