

# **Implementation Scheme of the Domestic Emission Control Areas for Atmospheric Pollution from Vessels<sup>1</sup>**

by Ministry of Transport of the People's Republic of China on 30<sup>th</sup> Nov. 2018

In order to implement the national policies on ecological civilization development, pollution prevention and control, to protect the blue skies, as well as to facilitate the green shipping development and the energy saving and emission reduction of vessels, this Implementation Scheme is formulated in accordance with the *Air Pollution Prevention and Control Law of the People's Republic of China* and the applicable international conventions, and on the basis of the *Implementation Scheme of the Domestic Emission Control Areas for Vessels in the Pearl River Delta, the Yangtze River Delta and the Bohai-Rim Area (Beijing, Tianjin and Hebei)* (JHF [2015] No. 177).

## **1. Objectives**

The Domestic Emission Control Areas for Atmospheric Pollution from Vessels (hereinafter referred to as “DECAs”) are designated to control and reduce emissions of atmospheric pollutants including SO<sub>x</sub>, NO<sub>x</sub>, particulate matters (PMs) and volatile organic compounds (VOCs) from vessels and to improve the air quality of coastal areas and inland river port cities.

## **2. Principles**

The DECAs are designated according to the following principles:

- (i) Promoting a coordinated development of the environment quality improvement and the shipping economy growth.
- (ii) Strengthening the control of air pollution from vessels.
- (iii) Complying with the international conventions and domestic laws.
- (iv) Taking a phased-in approach and conducting pilot programs.

## **3. Scope of Application**

The Scheme applies to vessels navigating, berthing and operating in the DECAs.

## **4. Geographic Scope of the DECAs**

The DECAs referred to in the Scheme include both the coastal control area and the inland river control area.

The coastal control area covers the sea area enclosed by the 60 coordinates listed in Table 1, and the sea area in Hainan waters is enclosed by the 20 coordinates listed in Table 2.

The inland river control area is the navigable waters of the main stream of the Yangtze River (from Shuifu, Yunnan to the mouth of the Liuhe River, Jiangsu) and the main stream of the Xijiang River (from Nanning, Guangxi to Zhaoqing, Guangdong), the coordinates of the starting and ending points are listed in Table 3.

**Table 1 Coordinates of the Boundary Control Points in the Coastal Control Area**

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<sup>1</sup> This English version of Implementation Scheme for DECAs is only for reference, whileas the documents issued by MOT should be used as the officail version.

| No. | Longitude     | Latitude     | No. | Longitude     | Latitude     |
|-----|---------------|--------------|-----|---------------|--------------|
| 1   | 124°10'06.00" | 39°49'41.00" | 31  | 112°50'52.80" | 21°22'25.68" |
| 2   | 122°57'14.40" | 37°22'11.64" | 32  | 112°29'20.40" | 21°17'12.48" |
| 3   | 122°57'00.00" | 37°21'29.16" | 33  | 111°27'00.00" | 19°51'57.96" |
| 4   | 122°48'18.00" | 36°53'51.36" | 34  | 111°23'42.00" | 19°46'54.84" |
| 5   | 122°45'14.40" | 36°48'25.20" | 35  | 110°38'56.40" | 18°31'10.56" |
| 6   | 122°40'58.80" | 36°44'41.28" | 36  | 110°37'40.80" | 18°30'24.12" |
| 7   | 122°24'36.00" | 36°35'08.88" | 37  | 110°15'07.20" | 18°16'00.84" |
| 8   | 121°03'03.60" | 35°44'44.16" | 38  | 110°09'25.20" | 18°12'45.36" |
| 9   | 120°12'57.60" | 34°59'27.60" | 39  | 109°45'32.40" | 17°59'03.12" |
| 10  | 121°32'24.00" | 33°28'46.20" | 40  | 109°43'04.80" | 17°59'03.48" |
| 11  | 121°51'14.40" | 33°06'19.08" | 41  | 109°34'26.40" | 17°57'18.36" |
| 12  | 122°26'42.00" | 31°32'08.52" | 42  | 109°03'39.60" | 18°03'10.80" |
| 13  | 123°23'31.20" | 30°49'15.96" | 43  | 108°50'42.00" | 18°08'58.56" |
| 14  | 123°24'36.00" | 30°45'51.84" | 44  | 108°33'07.20" | 18°21'07.92" |
| 15  | 123°09'28.80" | 30°05'43.44" | 45  | 108°31'40.80" | 18°22'30.00" |
| 16  | 122°28'26.40" | 28°47'31.56" | 46  | 108°31'08.40" | 18°23'10.32" |
| 17  | 122°07'30.00" | 28°18'58.32" | 47  | 108°28'44.40" | 18°25'34.68" |
| 18  | 122°06'03.60" | 28°17'01.68" | 48  | 108°24'46.80" | 18°49'13.44" |
| 19  | 121°19'12.00" | 27°21'30.96" | 49  | 108°23'20.40" | 19°12'47.16" |
| 20  | 120°42'28.80" | 26°17'32.64" | 50  | 108°22'45"    | 20°24'05"    |
| 21  | 120°36'10.80" | 26°04'01.92" | 51  | 108°12'31"    | 21°12'35"    |
| 22  | 120°06'57.60" | 25°18'37.08" | 52  | 108°08'05"    | 21°16'32"    |
| 23  | 119°37'26.40" | 24°49'31.80" | 53  | 108°05'43.7"  | 21°27'08.2"  |
| 24  | 118°23'16.80" | 24°00'54.00" | 54  | 108°05'38.8"  | 21°27'23.1"  |

|    |               |              |    |                                                                                         |             |
|----|---------------|--------------|----|-----------------------------------------------------------------------------------------|-------------|
| 25 | 117°50'31.20" | 23°23'16.44" | 55 | 108°05'39.9"                                                                            | 21°27'28.2" |
| 26 | 117°22'26.40" | 23°03'05.40" | 56 | 108°05'51.5"                                                                            | 21°27'39.5" |
| 27 | 117°19'51.60" | 23°01'32.88" | 57 | 108°05'57.7"                                                                            | 21°27'50.1" |
| 28 | 116°34'55.20" | 22°45'05.04" | 58 | 108°06'01.6"                                                                            | 21°28'01.7" |
| 29 | 115°13'01.20" | 22°08'03.12" | 59 | 108°06'04.3"                                                                            | 21°28'12.5" |
| 30 | 114°02'09.60" | 21°37'02.64" | 60 | The end of the center line of the main waterway of the Beilun River toward the sea side |             |

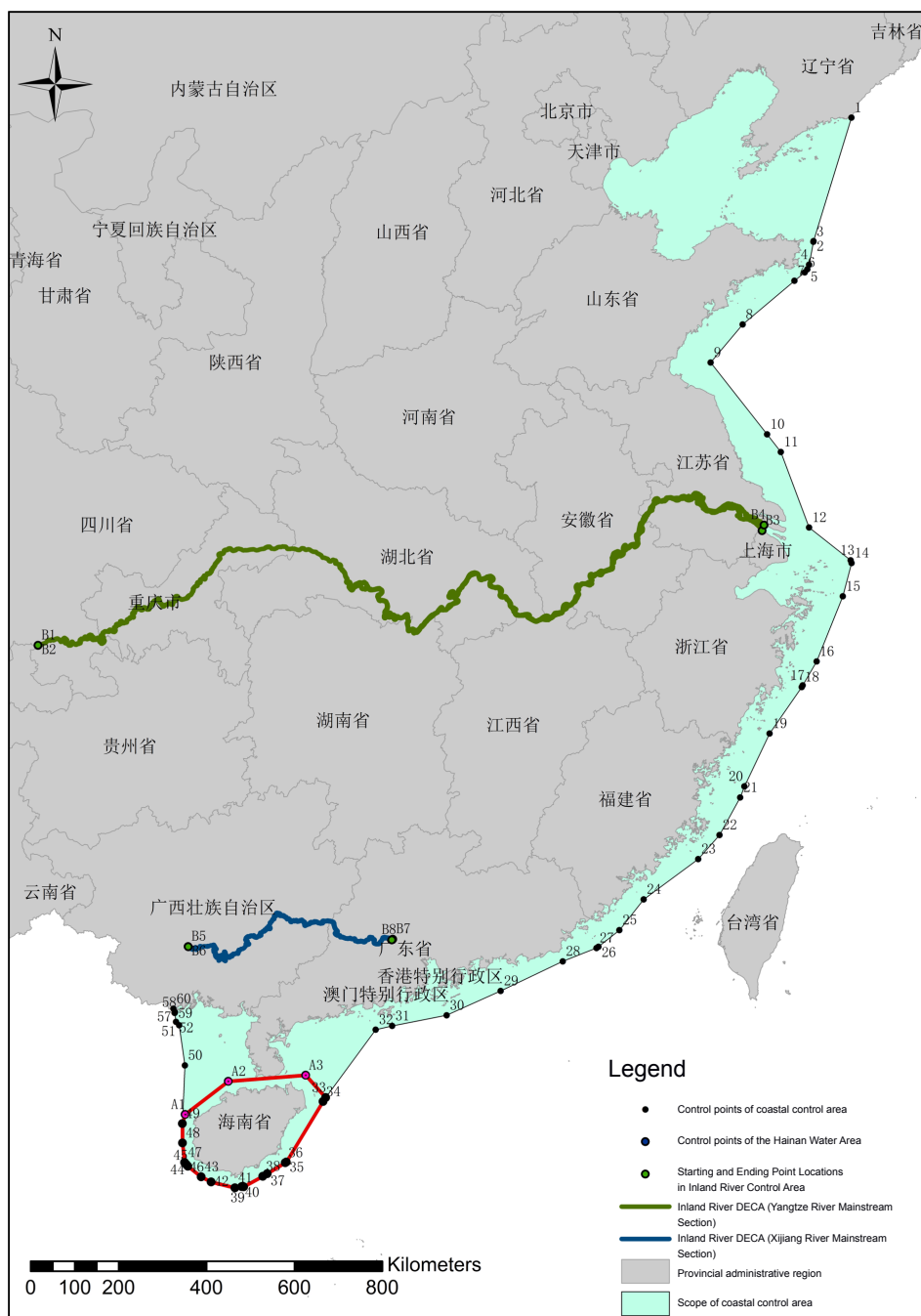
**Table 2 Coordinates of the Boundary Control Points in Hainan Waters**

| No. | Longitude     | Latitude     | No. | Longitude     | Latitude     |
|-----|---------------|--------------|-----|---------------|--------------|
| A1  | 108°26'24.88" | 19°24'06.50" | 33  | 111°27'00.00" | 19°51'57.96" |
| A2  | 109°20'00"    | 20°07'00"    | 34  | 111°23'42.00" | 19°46'54.84" |
| A3  | 111°00'00"    | 20°18'32"    | 35  | 110°38'56.40" | 18°31'10.56" |
|     |               |              | 36  | 110°37'40.80" | 18°30'24.12" |
|     |               |              | 37  | 110°15'07.20" | 18°16'00.84" |
|     |               |              | 38  | 110°09'25.20" | 18°12'45.36" |
|     |               |              | 39  | 109°45'32.40" | 17°59'03.12" |
|     |               |              | 40  | 109°43'04.80" | 17°59'03.48" |
|     |               |              | 41  | 109°34'26.40" | 17°57'18.36" |
|     |               |              | 42  | 109°03'39.60" | 18°03'10.80" |
|     |               |              | 43  | 108°50'42.00" | 18°08'58.56" |
|     |               |              | 44  | 108°33'07.20" | 18°21'07.92" |
|     |               |              | 45  | 108°31'40.80" | 18°22'30.00" |
|     |               |              | 46  | 108°31'08.40" | 18°23'10.32" |
|     |               |              | 47  | 108°28'44.40" | 18°25'34.68" |

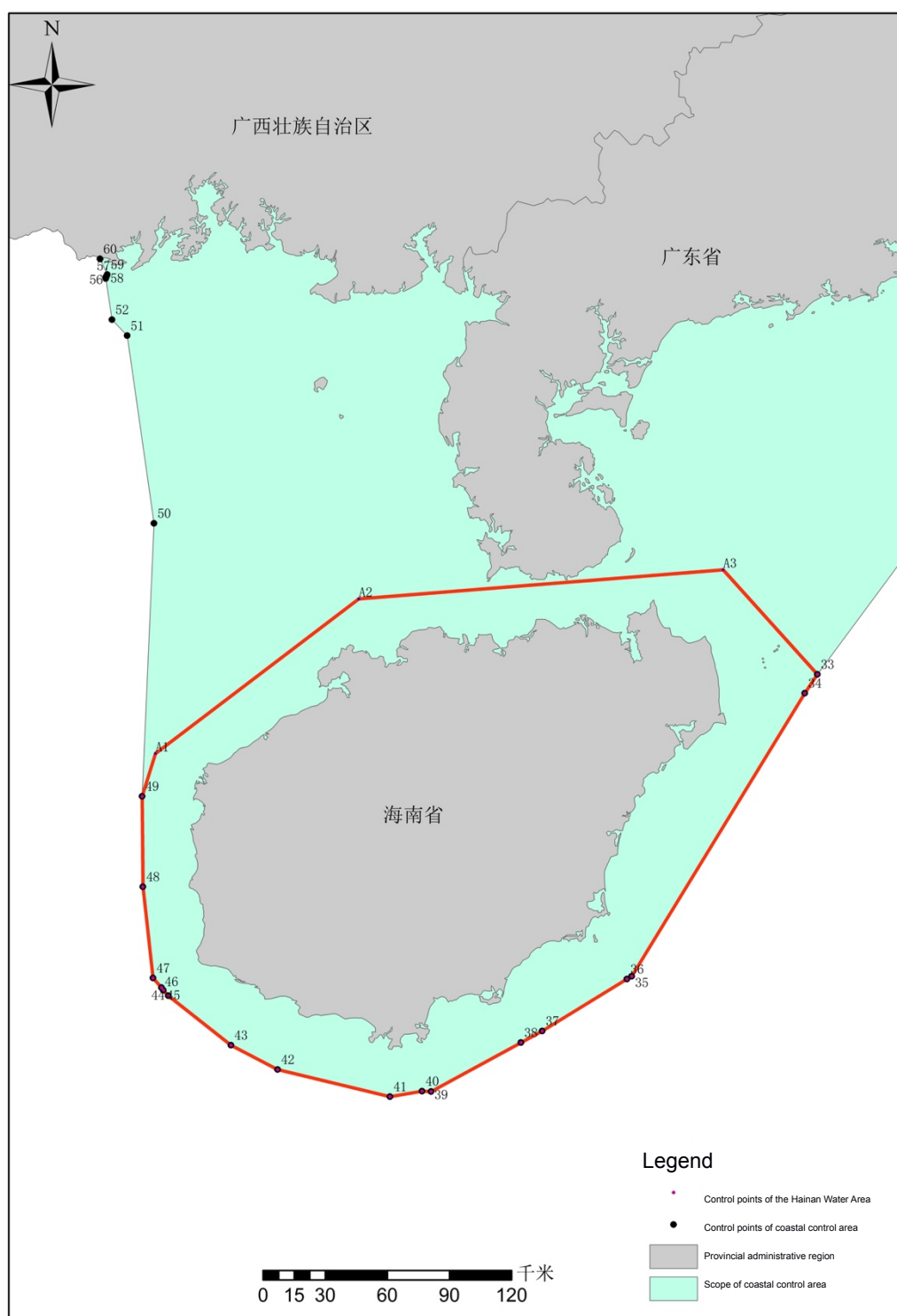
|  |    |               |              |
|--|----|---------------|--------------|
|  | 48 | 108°24'46.80" | 18°49'13.44" |
|  | 49 | 108°23'20.40" | 19°12'47.16" |

**Table 3 Coordinates of the Starting and Ending Points in the Inland River Control Area**

| Inland river control area        | Boundary name  | Name of the location             | Description of the location                                                                                                                                     | Location No. | Longitude     | Latitude     |
|----------------------------------|----------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|--------------|
| Main stream of the Yangtze River | Starting point | Shuifu Yunnan                    | Xiangjiaba Bridge                                                                                                                                               | B1           | 104°24'30.60" | 28°38'22.38" |
|                                  |                |                                  |                                                                                                                                                                 | B2           | 104°24'35.94" | 28°38'27.84" |
|                                  | Ending point   | Mouth of the Liuhe river Jiangsu | Line connecting Liuheiwu in the lower reaches of the mouth of the Liuhe River and Shixin signal pole in the lower reaches of the Shiqiao River Chongming island | B3           | 121°18'54.00" | 31°30'52.00" |
|                                  |                |                                  |                                                                                                                                                                 | B4           | 121°22'30.00" | 31°37'34.00" |
| Main stream of the Xijiang River | Starting point | Nanning Guangxi                  | Minsheng Terminal of Nanning                                                                                                                                    | B5           | 108°18'19.77" | 22°48'48.60" |
|                                  |                |                                  |                                                                                                                                                                 | B6           | 108°18'26.72" | 22°48'39.76" |
|                                  | Ending point   | Zhaoqing Guangdong               | Line connecting Tiexianjiao, Jinli and Shangzui, Yongkou, Wudinggang on the trunk stream of the Xijiang River                                                   | B7           | 112°48'30.00" | 23°08'45.00" |
|                                  |                |                                  |                                                                                                                                                                 | B8           | 112°47'19.00" | 23°08'01.00" |



**Figure 1 Geographic Scope of the Emission Control Area**



**Figure 2 Geographic Scope of the Emission Control Area in Hainan Waters**

## **5. Control Requirements**

### **(i) Emission control requirements for SO<sub>x</sub> and particulate matters**

.1 From 1 January 2019, the sulphur content of any fuel oil used on board sea-going vessels operating in the DECAs should not exceed 0.5% m/m; the fuel oil compliant with the newly revised national standards for marine fuels should be used on board large inland waterway vessels and on board vessels engaged in direct voyages between the sea and the river; and the diesel fuel compliant with the national standards should be used on board other inland waterway vessels. From 1 January 2020, the sulphur content of fuel oil used on board sea-going vessels should not exceed 0.1% m/m when operating in the inland river emission control area.

.2 From 1 March 2020, vessels that do not use the alternative arrangement for the control of SO<sub>x</sub> and PMs should only be loaded and use the fuel oil as required in this Scheme when operating in the DECAs.

.3 From 1 January 2022, the sulphur content of any fuel oil used on board sea-going vessels should not exceed 0.1% m/m when operating in the coastal emission control area in Hainan waters.

.4 The feasibility study for vessels using the fuel oil with the sulphur content not exceeding 0.1% m/m should be conducted in due course, so as to inform the decision on the implementation of 0.1% m/m sulphur cap for sea-going vessels when operating in the coastal emission control area on and after 1 January 2025.

### **(ii) Emission control requirements for NO<sub>x</sub>**

.5 Each marine diesel engine with a power output of more than 130 kW installed on vessels engaged in international voyages constructed on and after 1 January 2000 (according to the date that the keel is laid, similarly hereinafter) or having the marine diesel engine that undergoes a major conversion should meet the Tier I requirements in the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex VI.

.6 Each marine diesel engine with a power output of more than 130 kW installed on vessels engaged in international voyages constructed on and after 1 January 2011 or having the marine diesel engine that undergoes a major conversion should meet the Tier II requirements in MARPOL Annex VI.

.7 Each marine diesel engine with a power output of more than 130 kW installed on Chinese vessels engaged in domestic voyages constructed on and after 1 March 2015 or having the marine diesel engine that undergoes a major conversion should meet the Tier II requirements in MARPOL Annex VI.

.8 Marine diesel engines with a per cylinder displacement at or above 30 litres installed on Chinese vessels engaged in domestic voyages constructed on and after 1 January 2022 or having the marine diesel engine that undergoes a major conversion should meet the Tier III requirements in MARPOL Annex VI when operating in the coastal emission control area in Hainan waters and in the inland river emission control area.

.9 The application of the Tier III requirements of MARPOL Annex VI should be assessed in due course, so as to inform the decision on the implementation of the Tier III requirements for marine diesel engines with a per cylinder displacement at or

above 30 litres installed on Chinese vessels engaged in domestic voyages constructed on and after 1 January 2025 or having the marine diesel engine that undergoes a major conversion.

**(iii) Requirements for the use of shore power for vessels at berth**

.10 The Chinese public service vessels, inland waterway vessels (except for tankers) and vessels engaged in direct voyages between the sea and the river constructed on and after 1 January 2019 should have onboard devices for the use of shore power. The Chinese container vessels, cruise ships, ro-ro passenger ships, passenger ships at 3,000 gross tonnage and above as well as dry bulk cargo ships at 50,000 gross ton level and above engaged in domestic coastal voyages constructed on and after 1 January 2020 should have onboard devices for the use of shore power.

.11 From 1 July 2019, the existing ships (except for tankers) with onboard devices for the use of shore power should use the shore power when berthing at a berth with shore power supply capabilities inside the coastal emission control area for more than 3 hours, or inside the inland river emission control area for more than 2 hours without using other alternative or equivalent measures (including the use of clean energy, new energy, onboard UPS or auxiliary engine shutdown, similarly hereinafter). From 1 January 2021, cruise ships should use the shore power when berthing at a berth with shore power supply capabilities inside the DECAs for more than 3 hours without using other alternative or equivalent measures.

.12 From 1 January 2022, the Chinese public service vessels, inland waterway vessels (except for tankers) and Chinese container vessels, ro-ro passenger ships, passenger ships at 3,000 gross tonnage and above as well as dry bulk cargo ships at 50,000 gross ton level and above engaged in domestic coastal voyages and installed with each marine diesel engine with a power output of more than 130 kW that does not meet the Tier II requirements of MARPOL Annex VI should be fitted with onboard devices for the use of shore power, and such vessels should use the shore power when berthing at a berth with shore power supply capabilities inside the coastal emission control area for more than 3 hours, or inside the inland river emission control area for more than 2 hours without using other alternative or equivalent measures.

.13 The Chinese shipping companies and operators are encouraged to fit vessels other than those specified in paragraph .12 above with onboard devices for the use of shore power, and the shore power should be used when such vessels are berthing at a berth with shore power supply capabilities inside the DECAs.

**(iv) Others**

.14 The clean energy, new energy, onboard UPS and exhaust gas cleaning systems can be used by vessels as alternative methods to meet the emission control requirements. In case where the exhaust gas cleaning system is used, the discharge monitoring and control system should be installed and any wastes and discharges should be treated according to the applicable regulations.

.15 The local governments are encouraged to develop requirements on fuel sulphur content for sea-going vessels when operating in inland rivers other than those specified in this Scheme, taking into account the emission control requirements in the inland river emission control areas.

.16 The Chinese oil tankers at 150 gross tonnage and above engaged in domestic

voyages constructed on and after 1 January 2020 should meet the oil and gas recovery requirements when operating in the DECAs, and the oil and gas recovery operation should be conducted whenever the safety requirements are met. Vessels engaged in international voyages should meet the requirements on VOCs as provided in MARPOL Annex VI.

.17 Vessels should strictly comply with the emission control requirements as stipulated in the existing applicable international conventions, domestic laws and regulations as well as relevant rules and standards.

## **6. Supporting Measures**

### **(i) Strengthening the administration**

The transport authorities at the provincial level, maritime administrations, the Yangtze River shipping authority and the Pearl River shipping authority should strengthen the administration and coordination, make detailed implementation plans and assign duties, so as to build a comprehensive supporting mechanism for the implementation of this Scheme.

The Ministry of Transport should assess the implementation results of the above emission control measures and develop amendments to the Implementation Scheme, if necessary.

### **(ii) Enhancing the joint supervision**

The transport authorities at the provincial level and the maritime administrations should follow the “*Guidance on Strengthening the Low Sulphur Marine Fuel Oil Supply and the Joint Supervision by the Ministry of Transport and other 12 Relevant Departments*” (JHF [2017] No. 163), so as to set up the joint supervision mechanism to guarantee the supply of low sulphur marine fuel oils and to enhance the supervision and management of air pollution prevention and control for vessels.

### **(iii) Focusing on the policy support**

The transport authorities at the provincial level and the maritime administrations should coordinate with the local governments to adopt incentives and relevant measures, increase inputs in the enforcement equipment and personnel training; Subsidies and facilitation arrangement can be made to vessels using the low sulphur fuel oil, clean energies, exhaust gas cleaning systems, the oil and gas recovery, the shore power, the online monitoring as well as the phase-out of old and outdated vessels.

### **(iv) Application of science and technologies**

The transport authorities at the provincial level, maritime administrations, the Yangtze River shipping authority and the Pearl River shipping authority should provide guidance and support to the research and development institutes, shipping and port companies and equipment manufacturers to conduct technological studies on the emission control and reduction from vessels, and to develop technical standards to promote the application of science and technologies.