

# ក្រសួងសាធារណការ និងដឹកជញ្ជូន

MINISTRY OF PUBLIC WORKS AND TRANSPORT

ព្រះរាជាណាចក្រកម្ពុជា



## Status of Aids to Navigation in Cambodia

**Heng Suthy**

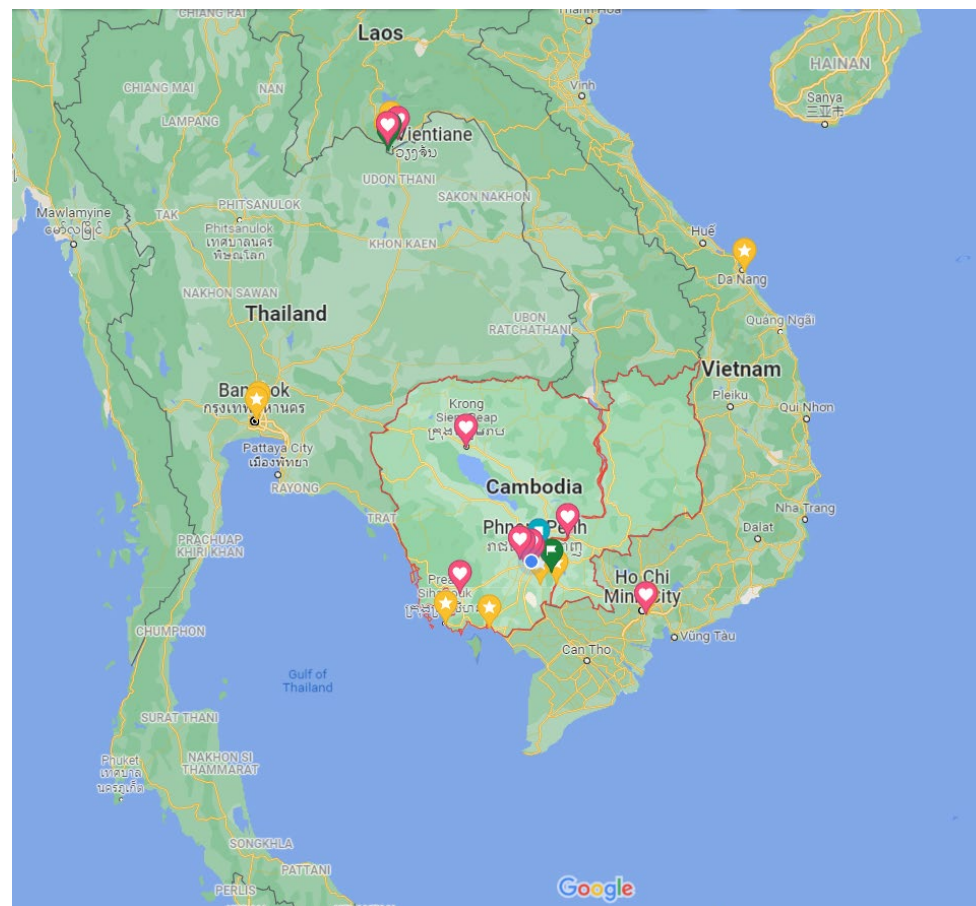
Chief of National Hydrographic Office, MPWT



# Cambodia Country Profile



Cambodia, located on the Indochinese mainland of Southeast Asia, is a land of plains and rivers that lies amid important overland and river trade routes linking China to India and Southeast Asia. Cambodia is bordered to the west and northwest by Thailand, to the northeast by Laos, to the east and southeast by Vietnam, and to the southwest by the Gulf of Thailand.



## Key Fact

- **Official Name:** Kingdom of Cambodia
- **Capital:** Phnom Penh
- **Geography:** 25 provinces
- **Land Area:** 181,035 sq km
- **Population (2019):** 15.288 million
- **Head of state:** President Norodom Sihamoni
- **Official Language:** Khmer
- **Currency:** Riel
- **GDP (2019):** 99,544 billion Riels
- **GDP Per Capita (2018):** 6.323 million Riels
- **Inland waterway Port:** Phnom Penh Autonomous Port
- **Costal International Port:** Sihanoukville Autonomous Port



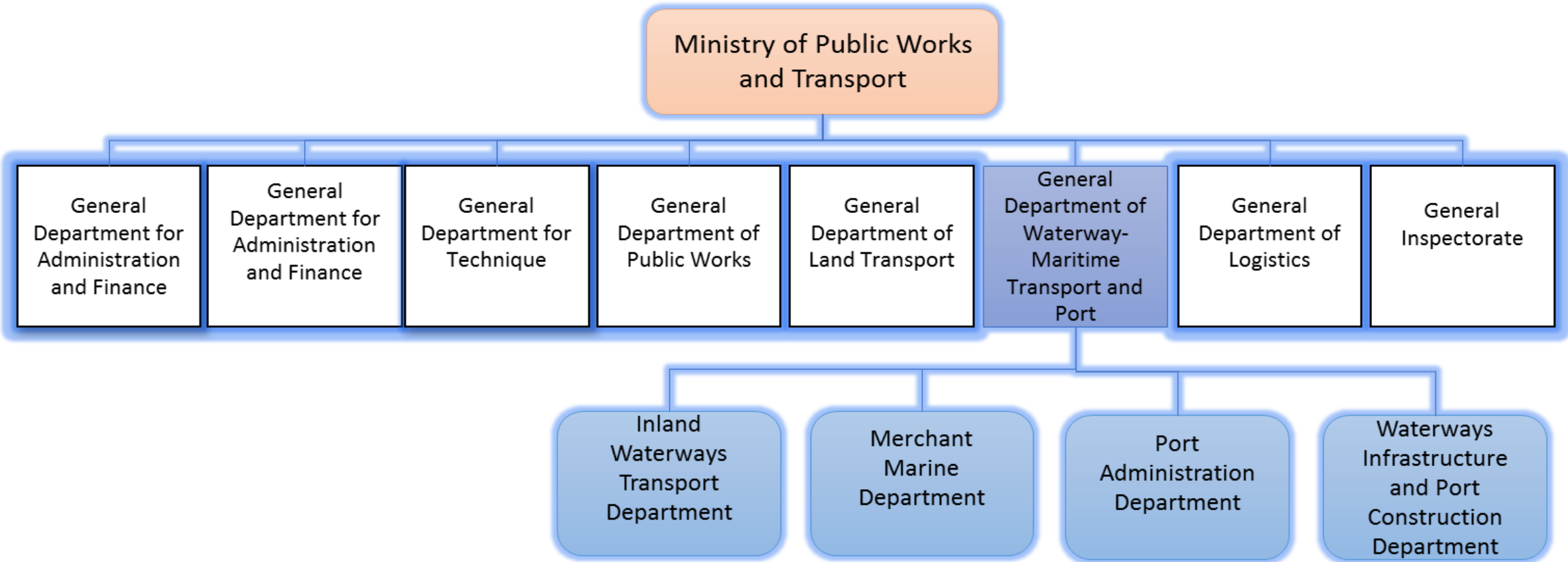
# Background (1)

- General Department of Waterway and Maritime Transportation and Port (GDWMP) was established by RCG Sub-decree No. 216 dated 13 October 2016 under MPWT.
- GDWMP is mandated to oversee some major works including 1) Inland waterway Transportation, 2) Maritime transportation, 3) inland and maritime infrastructure development and construction and 3) Port construction and administration.
- **Main Roles and Responsibilities of GDWMP:**
  - Domestic ship registration, operational license, inspection
  - Seafarers Certification
  - Port construction administration
  - Port operation license
  - Hydrographic survey
  - Aids to navigation development and management
  - Waterways (inland and maritime) infrastructure design, development and construction
  - Navigation channel design and electronic navigation chart production
  - Safety of Navigation (infrastructure)



# Background (2)

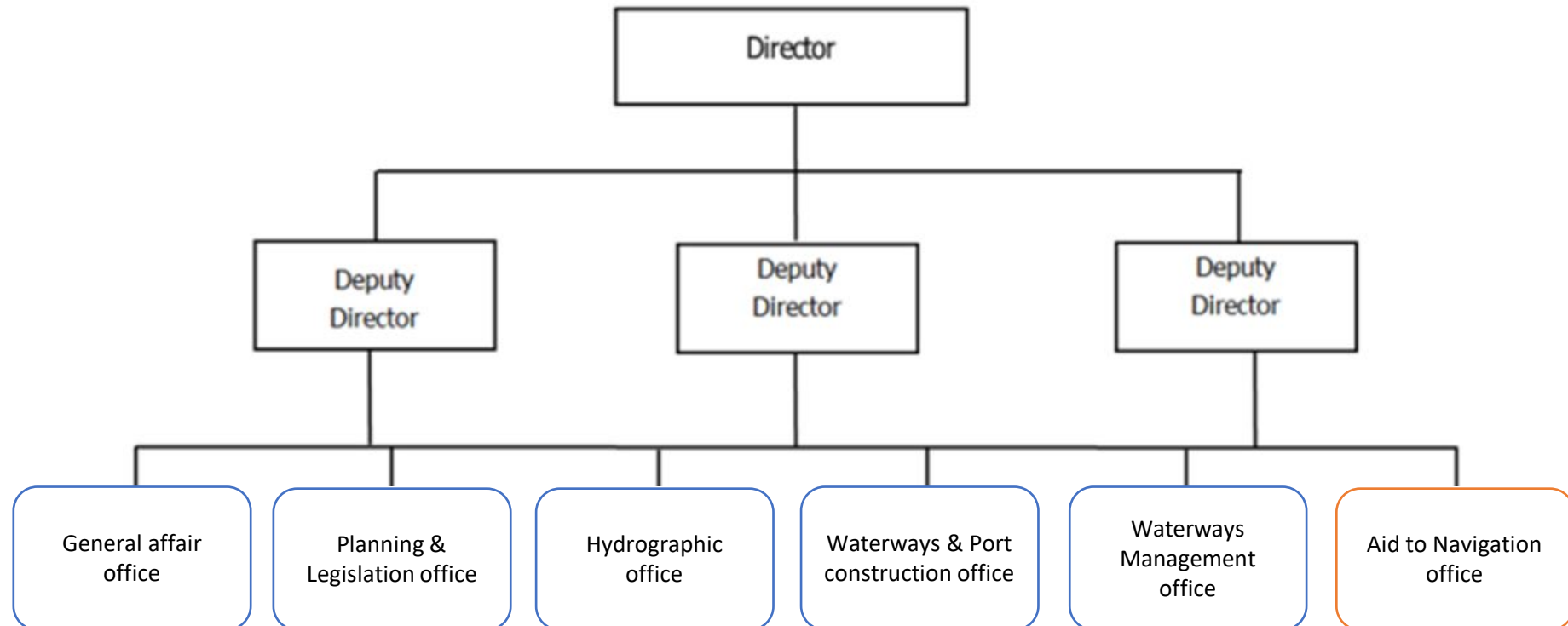
## Our Management Structure



# Background (3)

## Management Structure Related to Aids of Navigation

The Organization and the Functioning of  
Department of Waterways Infrastructure and Port  
Construction



# Background (4)

## Aid to Navigation

- The Kingdom of Cambodia was the only one country that had not produced nor published navigational aid, not to mention buoy, among the ASEAN countries. Due to limitation of technical and financial capacity, the maritime security services including search and rescue, maintenance of navigational aids and e-navigation system are still unavailable yet. Especially, accumulation of empirical knowledge essential to train the human resources that handled the aid to navigation was extremely deficient.
- It is considered that the present organization of navigational aid was organized to secure the navigational safety and to maintain the shipping lane along the river having the assistance from EU.
- Establishment of navigational aid is the responsibility under the Waterways Infrastructure and Port Construction Department, Ministry of Public Works and Transport (MPWT).
- Currently, there are some navigational aids are installed in Tonle Sap River, Mekong and Bassac in Cambodia.
  - First, there are 10 buoys in aid to navigation from Phnom Penh to Kampong Cham, including 5 red buoys and 5 green buoys.
  - Second, there are 18 buoys in aid to navigation from Phnom Penh to Kampong Chnang, including 11 red buoys and 7 green buoys.
  - Third, there are 43 buoys in aid to navigation from Phnom Penh to Kaam Samnor, including 16 red buoys, 22 green buoys, 2 yellow buoys and 3 white-red buoys.

# Status of Aids to Navigation in Waterway

## **AtoN at Inland water (Total 77 EA)**

- \* (Tonle Sap area) Phnom Penh ↔ Kampong Chhnang
- Floating AtoN 19EA (Red 11, Green 8)
  - \* (Mekong river upper stream) Phnom Penh ↔ Kampong Cham
- Floating AtoN 10EA (Red 5, Green 5)
  - \* (Mekong river down stream) Phnom Penh ↔ Kamsam nar
- Floating AtoN 48EA (Red 16, Green 27, Yellow 2, White-Red 3)

## **Lantern**

- \* (Status) Visibility of light : light beacon integrated type, 5Mile
- \* (Problem) No domestic Manufacturer, Import only, burglary

## Floating Plastic Beacon in Cambodia



- \* Plastic
- \* Medium size
- \* Visibility : 3M



- \* Plastic
- \* Large size
- \* Visibility : 3~5M



- \* Plastic
- \* Large size
- \* Visibility : 5M



## Beacon in Cambodia



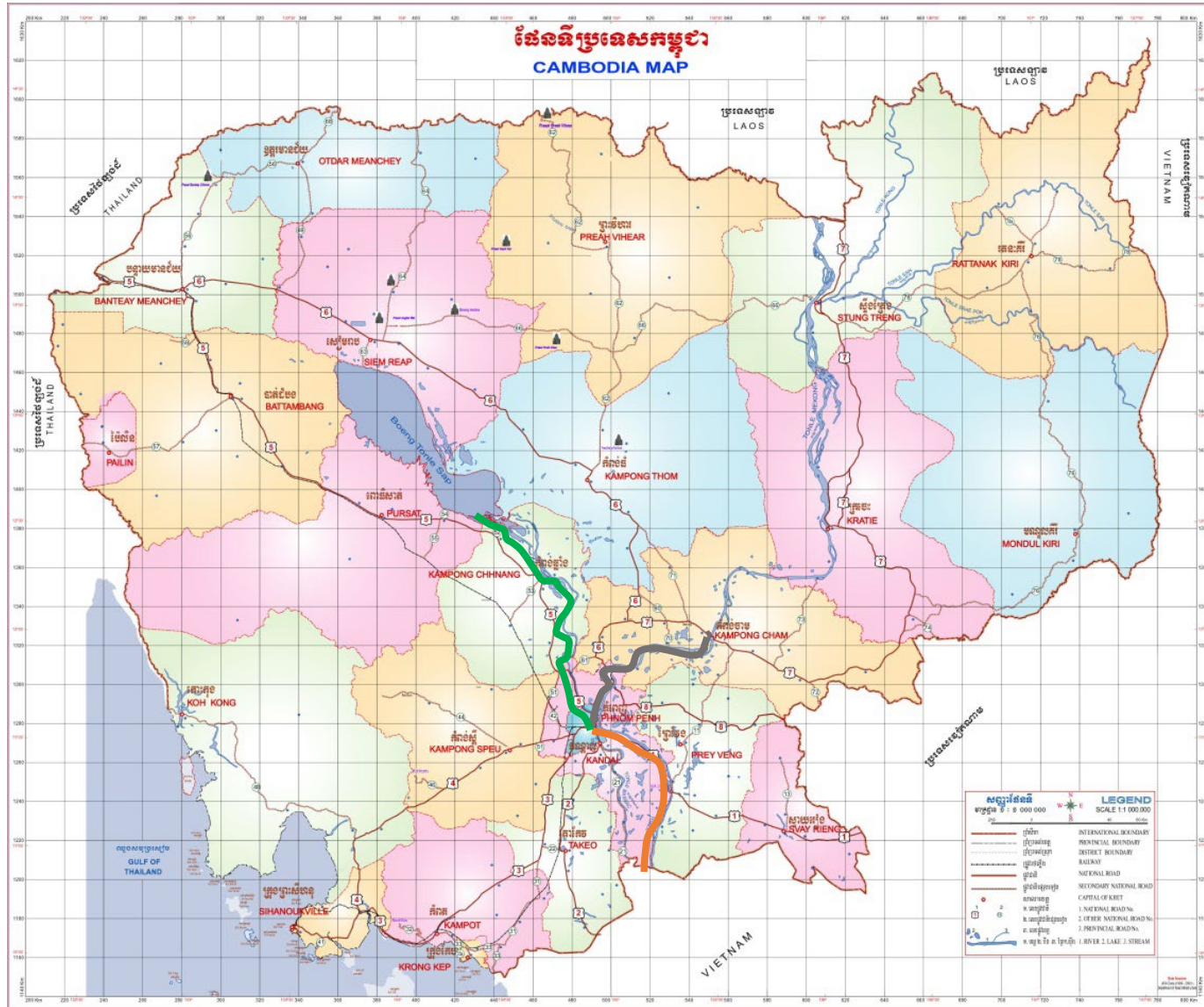
- \* Steel
- \* Large size
- \* Visibility : 3~5M



- \* Land mark beacon
- \* Light pole



# Aids to Navigation Control Project



❖ Upper Mekong River

(PP-KG-CHAM)



❖ Lower Mekong River (PP- KAAM SAMNOR)



❖ Tonle Sap (PP-CHOK TRUE)



# Status of Aids to Navigation in Coastal Areas

Some major activities related to marine navigation are in progress:

- Conducted numbers of studies and survey covers some areas of Cambodia coastal zone. The bathymetric data collection of the shore zone (water depth less than 10m to the shore line). The survey area covers from Sre Ambel bay to Ream and some area in Kampot Province. It is about 30% of the coastal shore zone of Cambodia.
- Conducted bathymetry survey for a deeper navigation route surrounding coastal line in Sihanouk Ville Port.
- Establishment of ENC chart of Sihanouk Port Area (finished), 2016
- Deployed light house and navigation buoy in some coastal areas especially in Sihanoukville international port and some private port

# Limitations, Issues, Challenges

- Although many works have been progressive as planned, some technical and resources requirements to ensure effectiveness of maritime safety operation are still limited such as
  - i) the deployment and operation of VMS, AIS, LRIT, SSAS and e-navigation
  - ii) very limited capacity of our staff to operate the system,
  - iii) No financial capacity to install the required equipment and
  - iv) To establish a central operating and information management system and command centre and so on.
- Moreover, Cambodia is also still at a very initial stage of the development of legal framework on maritime safety operation. It is also required a concrete and stronger support and assistance from other international organizations such as IMO and IALA etc as well as financial support from development partners

# Limitations, Issues, Challenges

- The Marine Spatial Data Infrastructure (MSDI) covers the waterway and coastal area of Cambodia are unavailable.
- The bathymetric data of out shore zone (depth > 10m) is not available.
- Limitation of the equipment of hydrographic and oceanographic survey such as boat and pick-up trucks, for the hydrographic and oceanographic survey activities.
- Limitation of Tidal Stations in the north region, including capacity building on the tide data processing, analysis and its evaluation. There is only one temporal tidal station in the Sihanouk Ville port, which has been maintained and operating for the hydrographic survey on ENC production from 2014 to 2016.



# Future Plan of AtoN in Cambodia

## Development for Aids to Navigation in Cambodia

### ▪ List of Possible projects

#### Aids to Navigation Master Plan

- Field survey and Database development
- Long term & short term Aton development plans
- Maintenance of Aton Facilities
- Alternative uses of Aton
- International compliance

#### Capacity Building & Technology Sharing

- Aton Capacity Building in accordance with IALA WWA
- Training and Education
- State of the Art Aton Technology Sharing
- **Development of e-Navigation**
- **Promote digitalization**

#### Aton Infrastructure construction

- Construction and maintenance of Aton
- Aton equipment and facilities support
- Multi-purpose Aton
- **Installation of GMSS**
- **Installation of VTS, AIS**

# Conclusion

**Waterway transportation sector is one of the most important sector to improve Cambodia economy through promoting low cost transportation with a faster connection for people and goods from all areas in the country and the beyond. In addition, there are many big city with a lot of industrial and agricultural zones located along the Mekong River and small rivers that connect to the Mekong River such as Tonle Sap, Basac River, Mekong River.**

**Therefore, we need to install and improve our state-of-art aids to navigation system and equipment, implement e-navigation system, applications of digitization in waterway and maritime transport, maintenance the navigation channel, prepare inland waterway transport legislative document and focusing on capacity building and necessary training course for the MPWT staffs.**



# THANK YOU!

