

*The MRC Regional Stakeholder Forum*

*14<sup>th</sup> – 15<sup>th</sup> December 2017*

*Vientiane, Lao PDR*



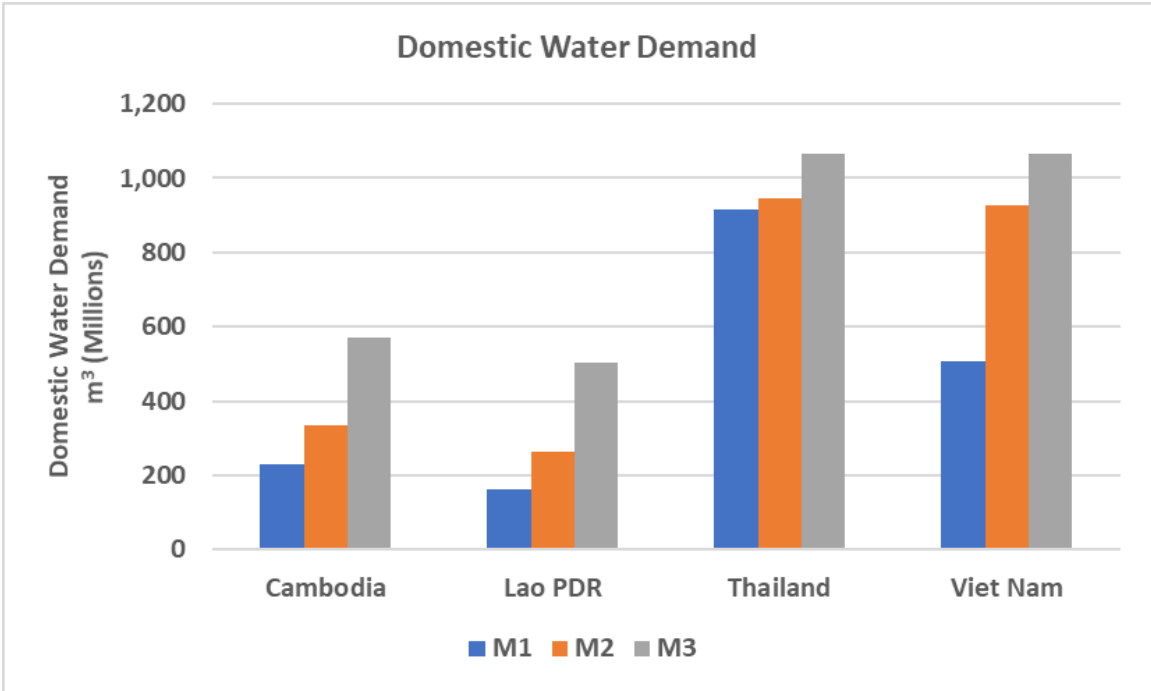
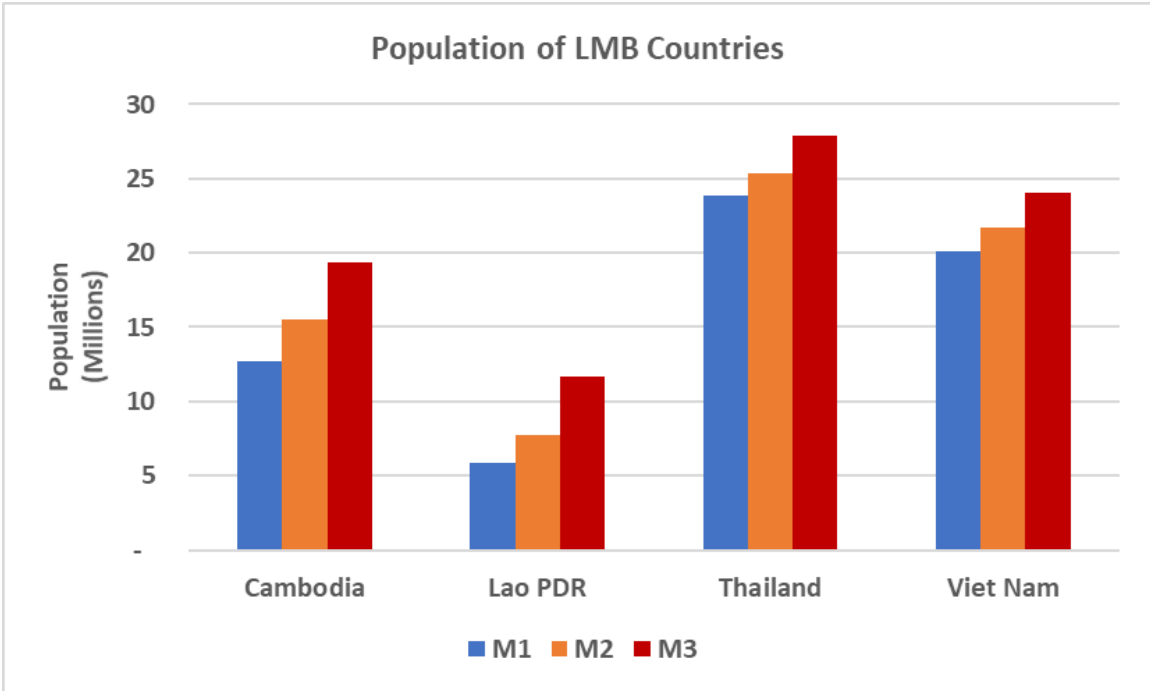
# **MRC Council Study - Domestic and Industrial Water Use Impact Assessment**



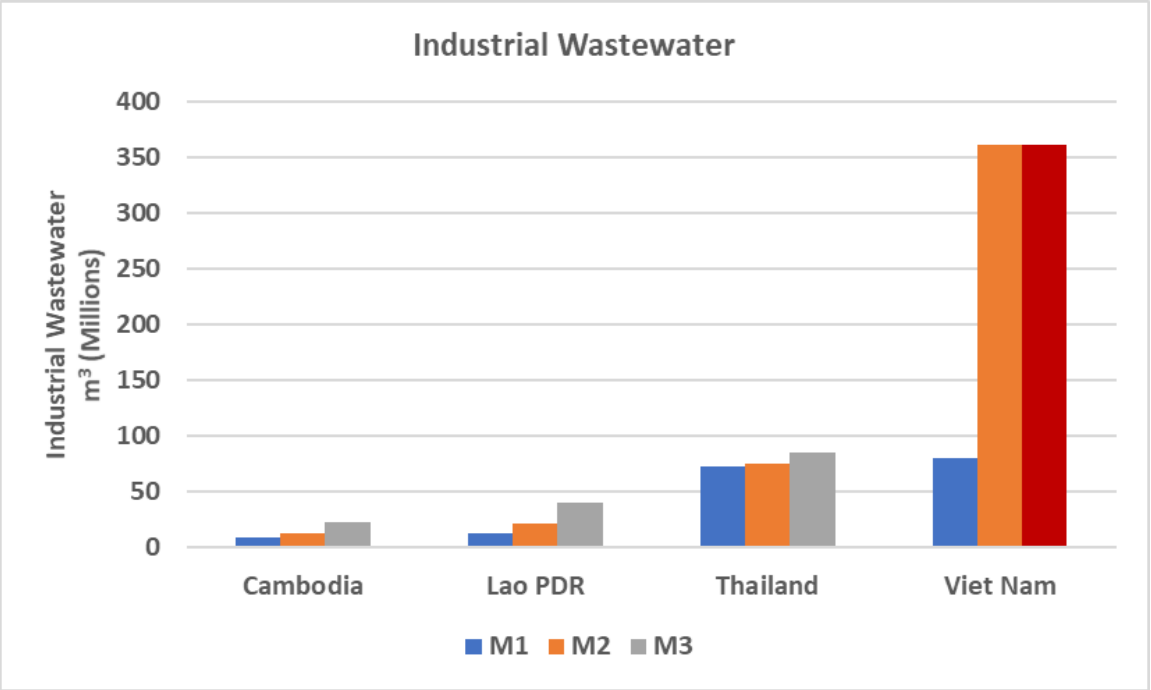
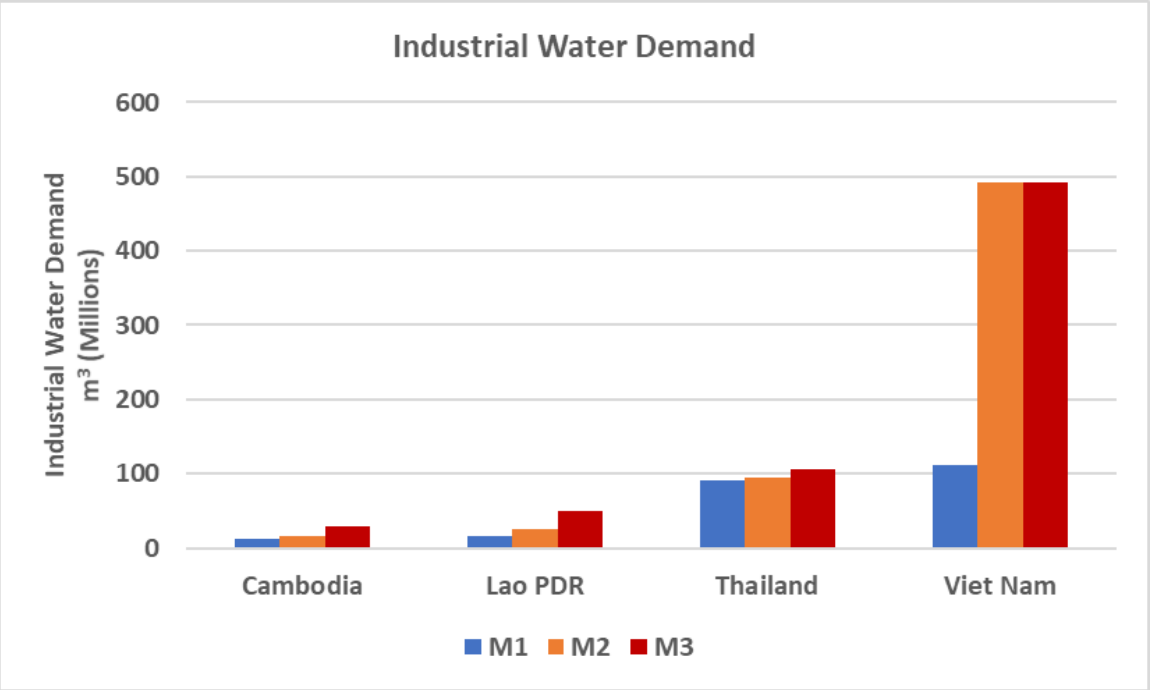
# Assessment Approach

- ❑ Identification of the impacts and benefits of the domestic and industrial water use;
- ❑ Estimated of water demand;
- ❑ Estimate of general effluent and waste water discharge;
- ❑ Transboundary Indicators (impact of wastewater discharge on water quality downstream; and
- ❑ Environmental Indicators (changes of water quality in the mainstream).

# Population and Domestic Water Demand



# Industrial Water Demand and Wastewater

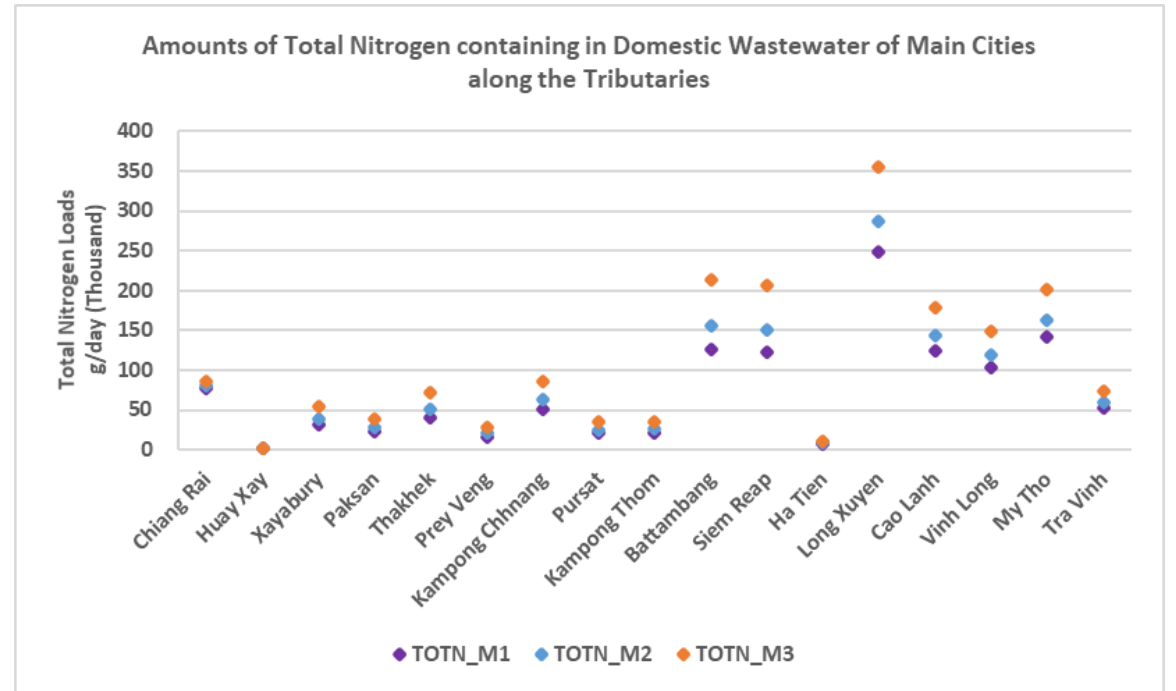
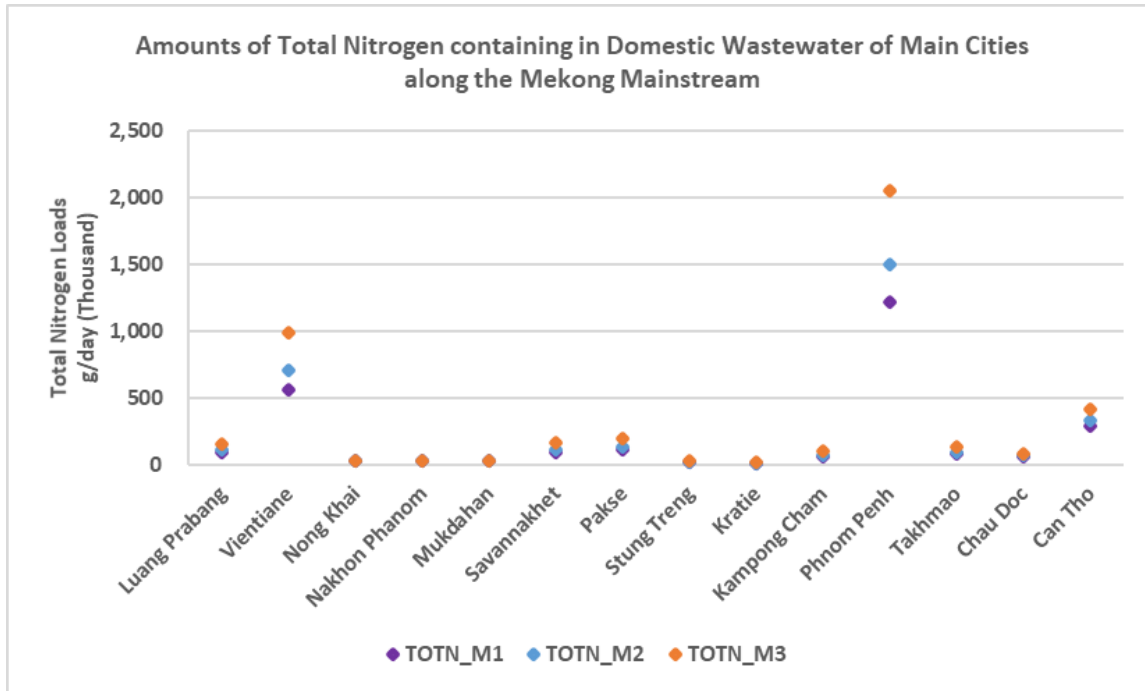


# Main Development Scenarios

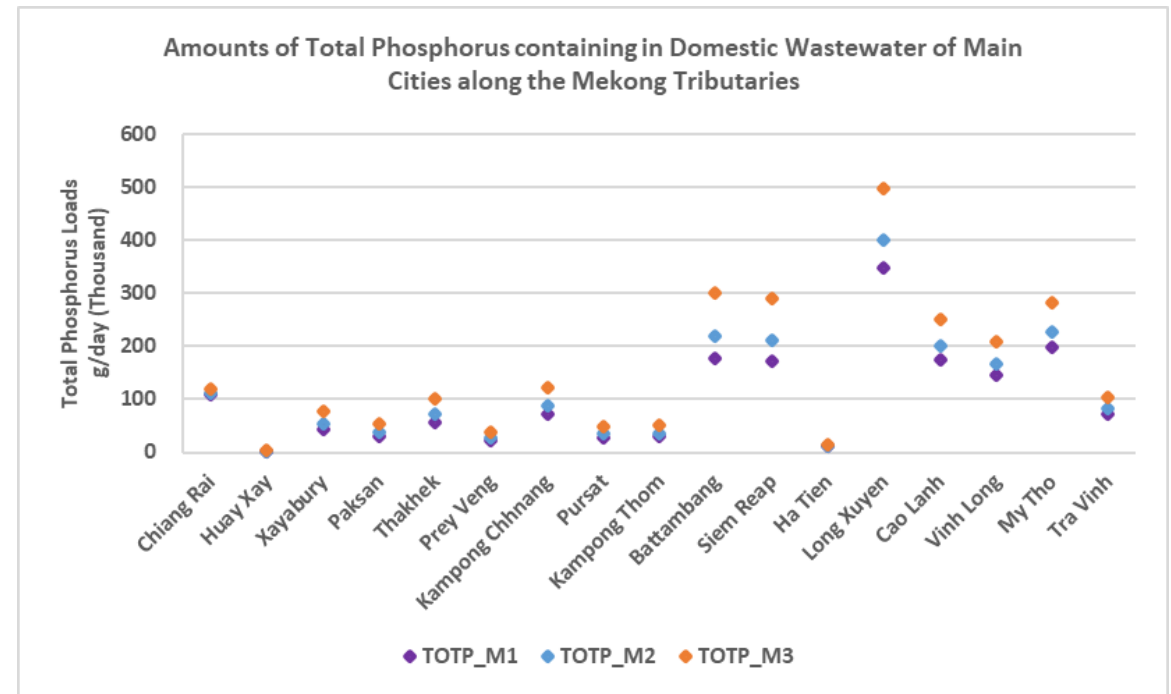
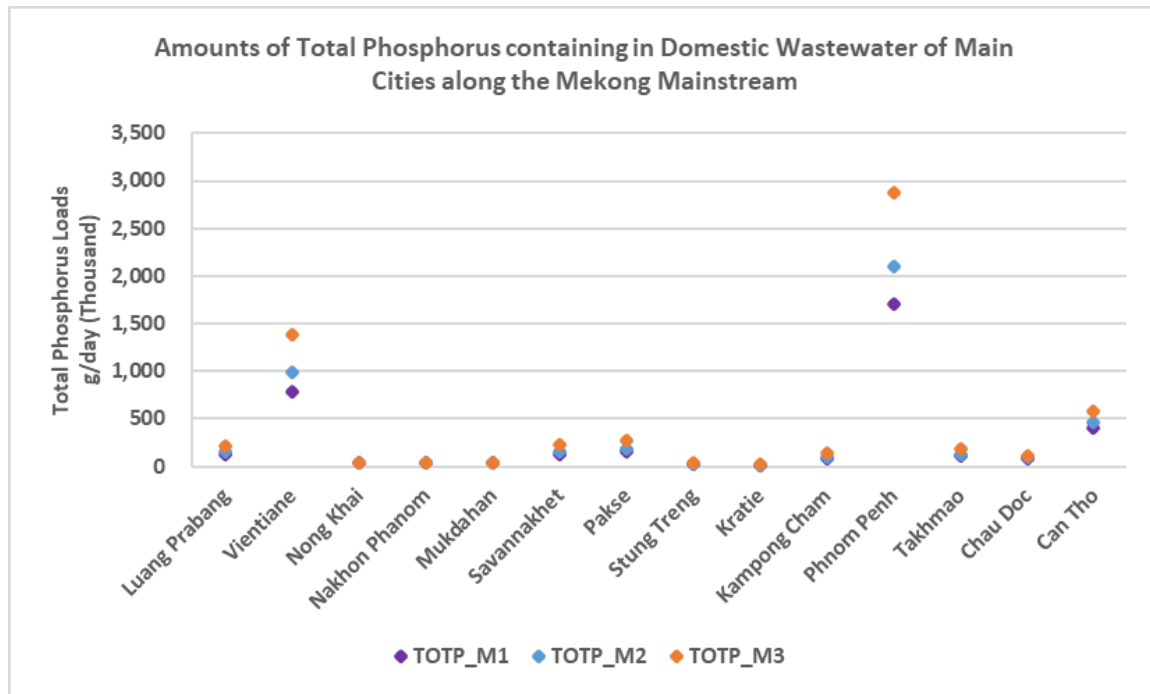
1. Early Development Scenario 2007 (M1);
2. Definite Future Scenario 2020 (M2); and
3. Planned Development Scenario 2040:
  - Without Climate Change Scenario (M3)
  - With Climate Change Scenario (M3-CC)



# Total Nitrogen Loads in the Domestic Wastewater

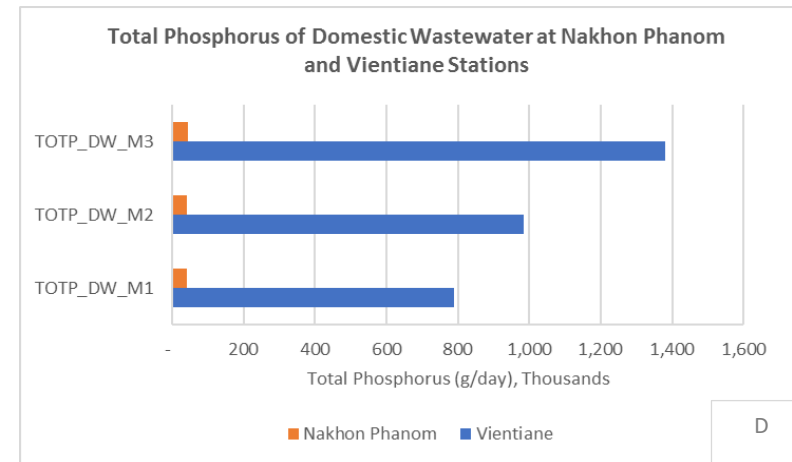
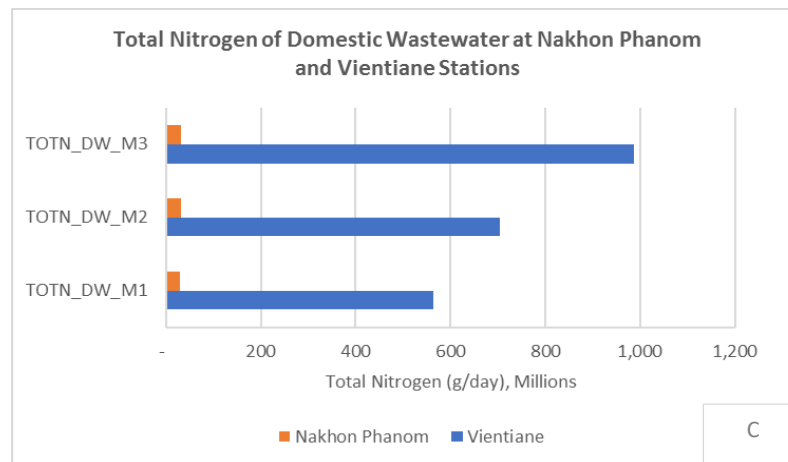
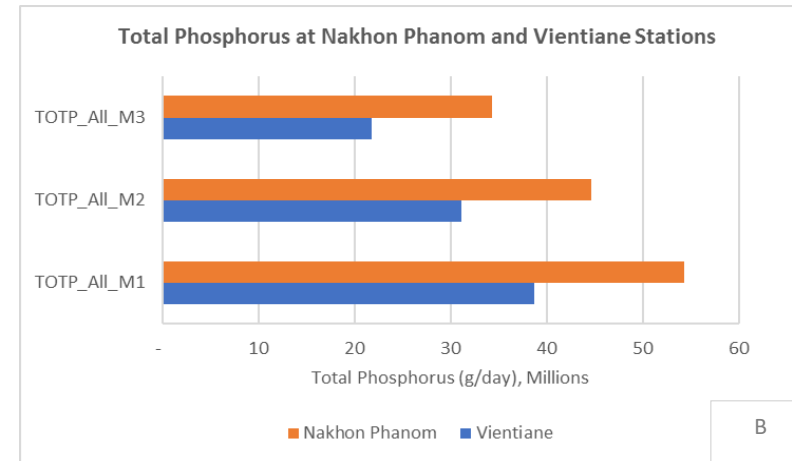
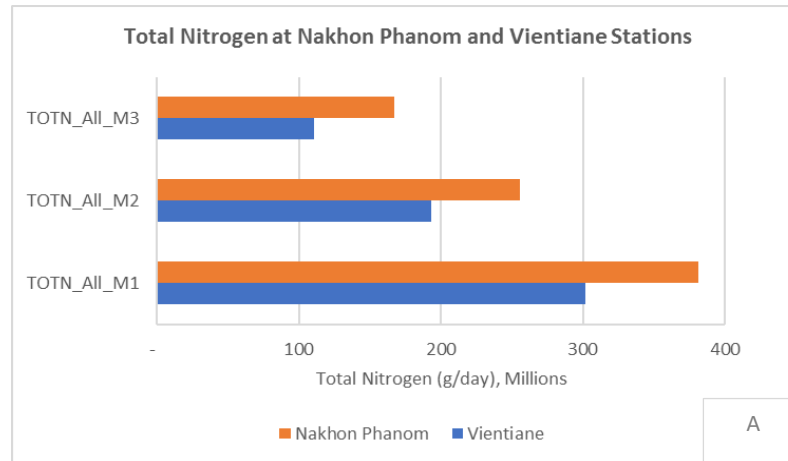


# Total Phosphorus Loads in the Domestic Wastewater



# Transboundary Impacts

## Nakhon Phanom vs. Vientiane

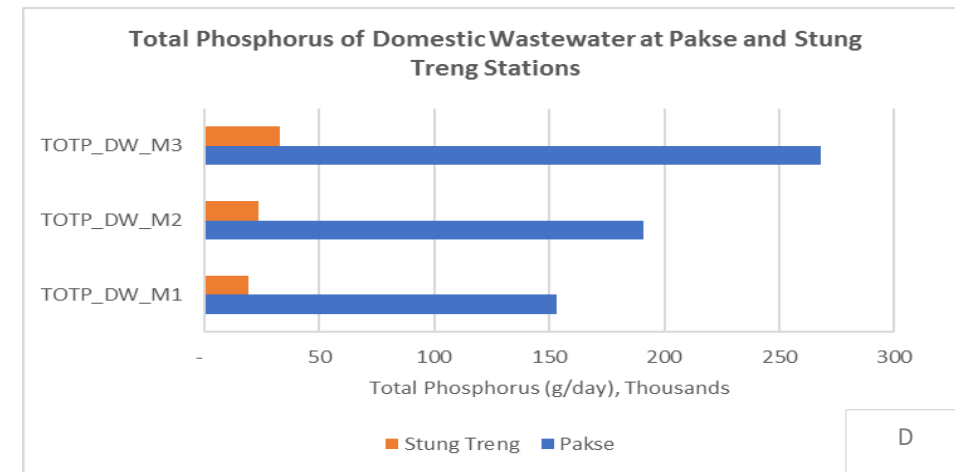
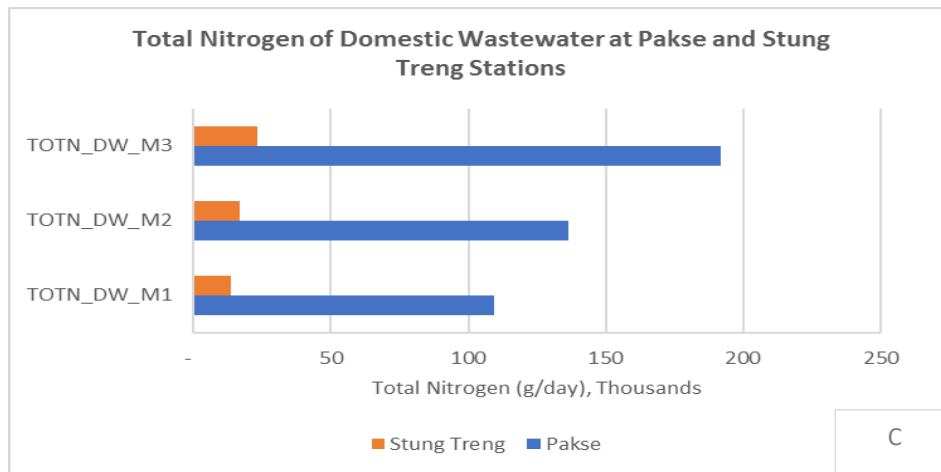
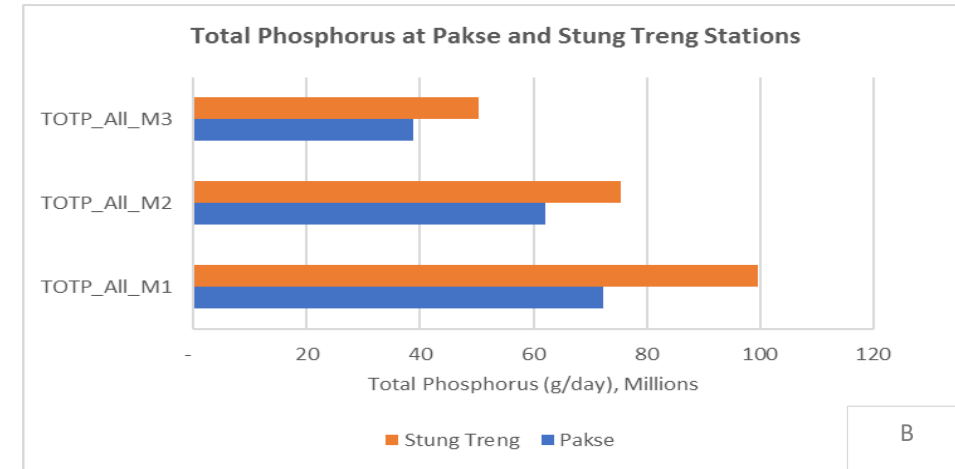
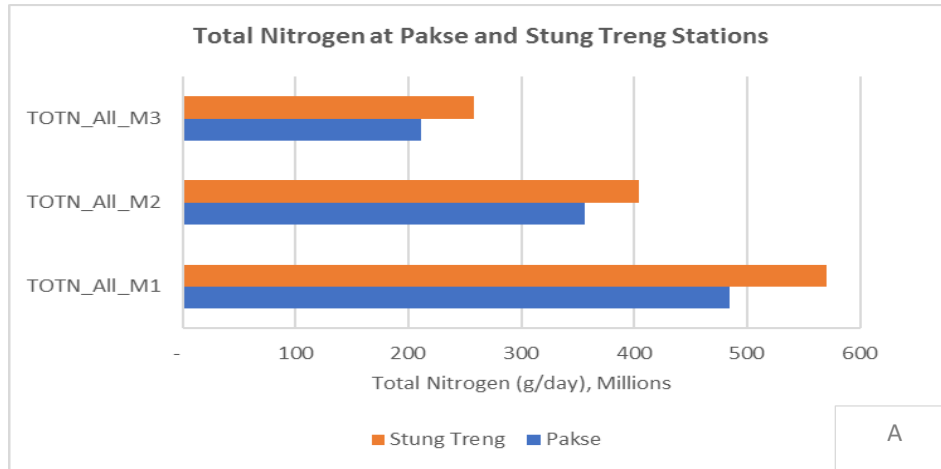


Note: A & B are amounts of total nitrogen and phosphorus influenced by both natural and anthropogenic activities in the Basin, including urban runoff, industrial effluents, agricultural runoff, and natural and/or human induced. C & D are amounts of total nitrogen and phosphorus containing in the domestic wastewater.



# Transboundary Impacts (Cont..)

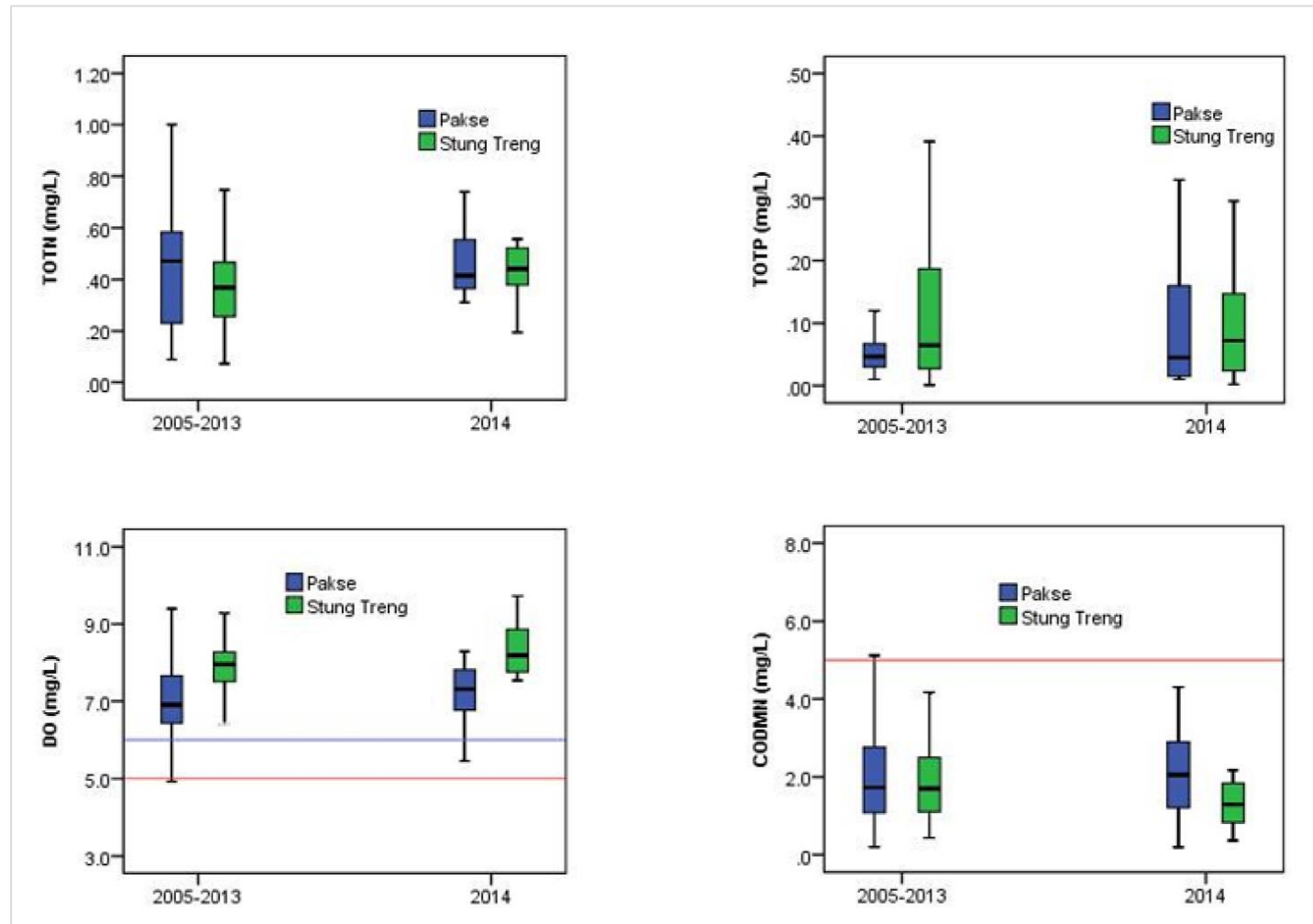
## Pakse vs. Stung Treng



Note: A & B are amounts of total nitrogen and phosphorus influenced by both natural and anthropogenic activities in the Basin, including urban runoff, industrial effluents, agricultural runoff, and natural and/or human induced. C & D are amounts of total nitrogen and phosphorus containing in the domestic wastewater.

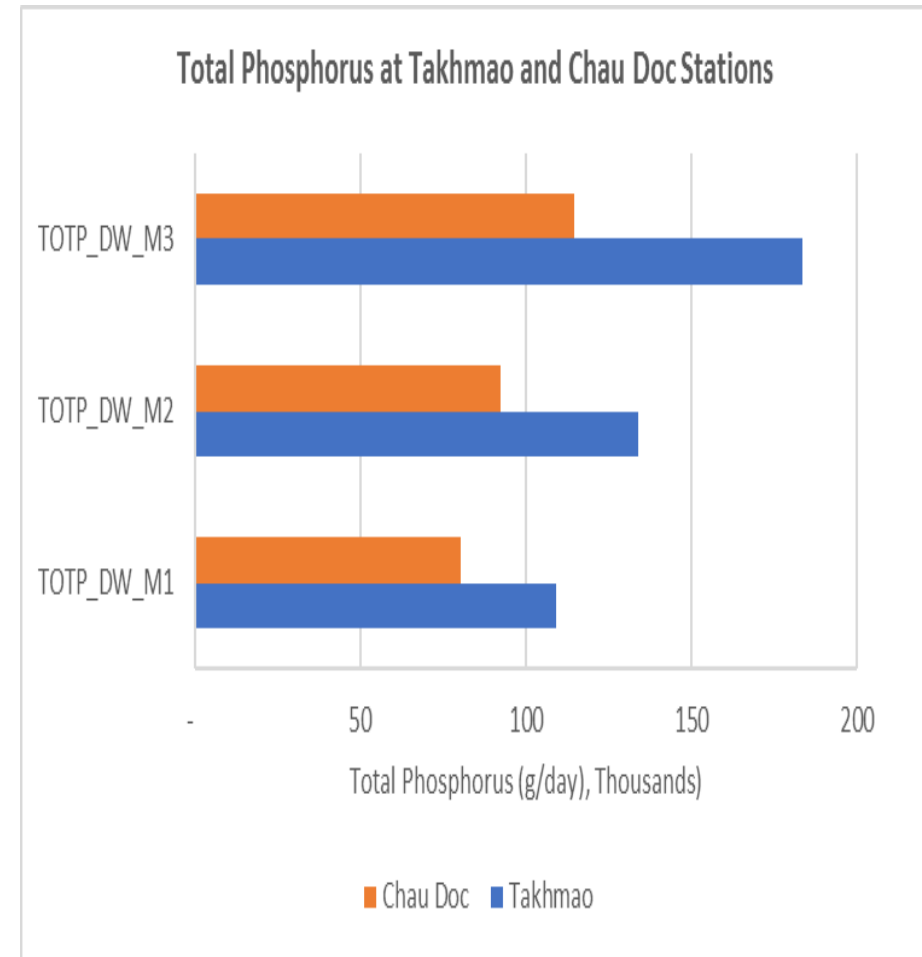
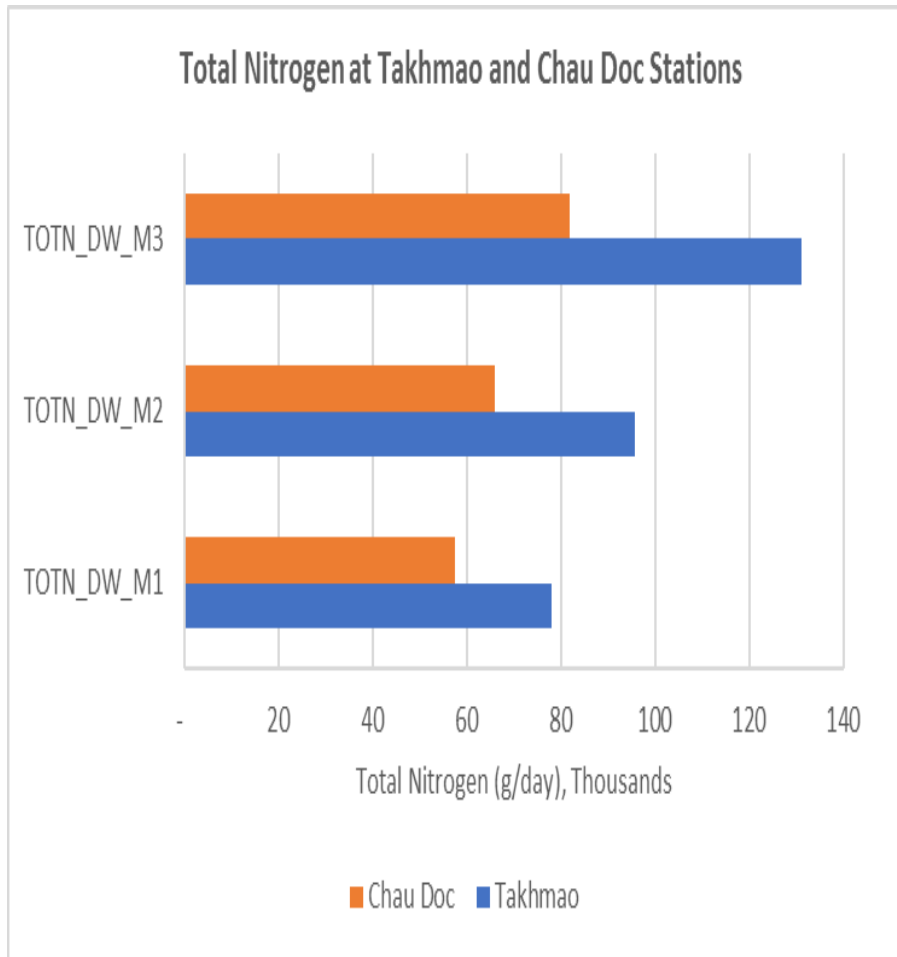
# Transboundary Impacts (Cont..)

## Pakse vs. Stung Treng



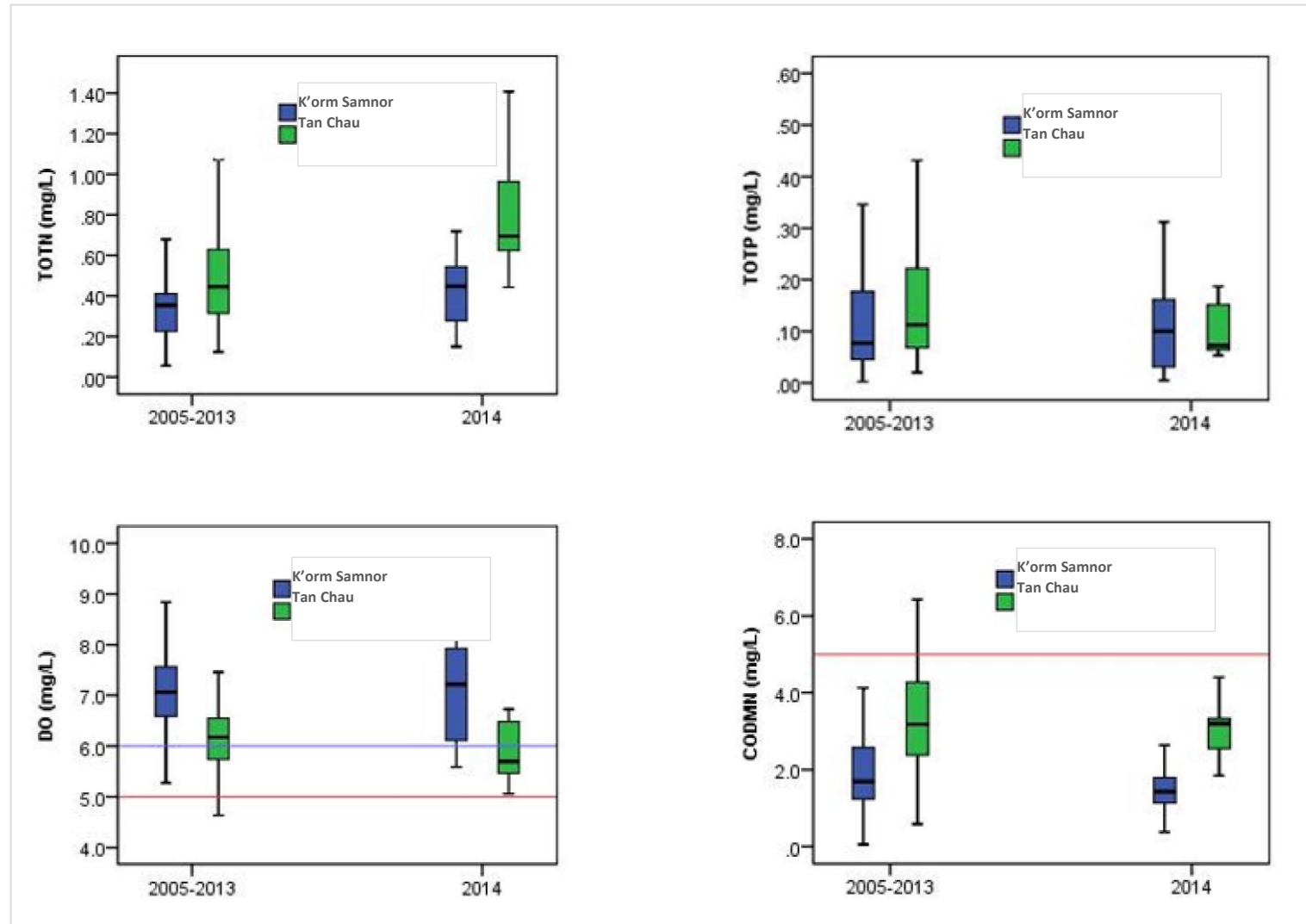
# Transboundary Impacts (Cont..)

## Takhmao vs. Chau Doc



# Transboundary Impacts (Cont..)

## K'orm Samnor vs. Tan Chau



# Conclusions

- ❑ The domestic water demand of the LMB are approximately 1,816 million m<sup>3</sup> in 2007 (M1); 2,475 million m<sup>3</sup> in 2020 (M2); and 3,206 million m<sup>3</sup> in 2040 (M3).
- ❑ The industrial water demand of the LMB are approximately 232 million m<sup>3</sup> in 2007 (M1); 629 million m<sup>3</sup> in 2020 (M2); and 677 million m<sup>3</sup> in 2040 (M3).
- ❑ The industrial wastewater of the LMB are approximately 176 million m<sup>3</sup> in 2007 (M1); 471 million m<sup>3</sup> in 2020 (M2); and 510 million m<sup>3</sup> in 2040 (M3).
- ❑ The domestic and industrial water use has only minor impact as the volumes are quite small compared to the Mekong mainstream flow.
- ❑ There is no significantly transboundary impact associated with the water quality.

