

Scenarios	2005	2015	2025	2050
Population <sup>a</sup> (inhabitant)	6,200,000	8,400,000	10,300,000	16,600,000
Number of WWTPs <sup>b</sup>	0	2	4	12
WWTPs treatment capacity (m <sup>3</sup> d <sup>-1</sup> ) <sup>b</sup>	0	171 000	1,253,000	2,813,000
Population connected to WWTPs (%) <sup>c</sup>	0%	10%	27%	54%
NH <sub>4</sub> <sup>+</sup> flux from canals to river (kgNd <sup>-1</sup> ) <sup>d</sup>	5,670	4,611	6,100	12,780
PO <sub>4</sub> <sup>3-</sup> flux from canals to river (kgPd <sup>-1</sup> ) <sup>d</sup>	324	256	278	671
TOC flux from canals to river (kgCd <sup>-1</sup> ) <sup>d</sup>	24,300	15,114	20,410	43,830
Temperature (°C) <sup>e</sup>	28	28	28+0.5 <sup>e</sup>	28+1.5 <sup>e</sup>
Tidal range (m) <sup>f</sup>	2.80	2.80	2.80	2.80 + 0.2 <sup>f</sup>
Freshwater inflow in dry and rainy season (m <sup>3</sup> s <sup>-1</sup> ) <sup>g</sup>	28 & 120	28 & 120	28 & 120	28 & 120

<sup>a</sup> Based on calculation of UN World Urbanization Prospects for population growth rate in HCMC which are 2.7% in 2020 and decrease to 1.3% in 2050.

<sup>b</sup> Planning of the building of new WWTPs from (Tran Ngoc *et al.*, 2016).

<sup>c</sup> Percentage of the population connected to WWTPs is equal to WWTPs volume capacity divided by the total water consumption (200 liters/capita/day).

<sup>d</sup> Total flux of treated wastewater and untreated wastewater. The treated flux was calculated based on removal efficiency, 40–50% of TN, TP and 85% of TOC in the conventional active sludge treatment process from Metcalf and Eddy/AECOM, 2014 for the WWTP outlet. The untreated flux was calculated based on the nutrient emission per capita from Nguyen *et al.*, 2020.

<sup>e</sup> Increase in sea surface temperature of 1.5°C by 2050 under RCP8.5 scenario, adapted for HCMC (MONRE *et al.*, 2016).

<sup>f</sup> Increase of tidal amplitudes by 2050 (Bindoff *et al.*, 2019).

<sup>g</sup> The upstream boundary condition discharge Dau Tieng Reservoir is maintained for all three scenarios. The increase in water demand in HCMC in the future will be addressed by increasing additional water sources mainly from Dongnai River (net discharge 613 m<sup>3</sup> s<sup>-1</sup>) (Tran Ngoc *et al.*, 2016).