Supplementary Materials: Evaluating the Interests of Different Stakeholders in Beijing Wastewater Reuse Systems for Sustainable Urban Water Management

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Table S1. Summary of the parameter used for determination of cost and benefits.

Parameter	Definition
I_1	initial investment of centralized plant (CNY ¥)
M_1	O&M cost of centralized plant (CNY ¥/year)
E_1	cost of Carbon dioxide emission of centralized plant (CNY ¥/year)
b	unit cost per carbon dioxide emission (CNY ¥/ton)
g	energy consumption of centralized plant (kWh/year)
z	carbon dioxide emission rate (g/kWh)
H_1	cost of health risks of centralized plant (CNY ¥/year)
d	DALY cost rate (CNY ¥ per DALY per year)
q	DALY rate (DALYs/person)
k	registered permanent population living in Beijing (person)
p_1	DALY probability associated with centralized plant (%)
V_1	cost of residential resettlement of centralized plants (CNY ¥/year)
t	average increased public transport cost (CNY ¥ per person per day)
p	population density (person/m^2)
l	length of pipe construction (m)
C_{G1}	total cost of centralized plant from perspective of MAC (CNY ¥)
r	discounting rate (%)
n	estimation period (year)
L_1	cost savings on fertilizers (CNY ¥/year)
u_f	unit cost of saving on fertilizers(CNY ¥/m^3)
f	amount of reused water for agricultural irrigation (m^3)
O_1	benefit of increased water availability of centralized plants (CNY ¥/year)
u_e	monetary value of water (CNY ¥/m^3)
e_1	amount of total reused water of centralized plant (m^3)
J_1	benefit of increase of jobs in centralized plant (CNY ¥/year)
β	ratio of employment growth to economic growth (%)
w	number of increased jobs (person)
W	total employment amount of Beijing (person)
Y	gross domestic product of Beijing (CNY ¥)
B_{G1}	total benefits of centralized systems from perspective of MAC (CNY ¥)
I_2	initial investment of decentralized plant (CNY ¥)
M_2	O&M cost of decentralized plant (CNY ¥/year)
N_2	cost of noise pollution (CNY ¥/year)
C_u	unit noise pollution cost (CNY ¥ per person per year)
u	number of affected people due to decentralized plant (person)
H_2	cost of health risks of decentralized plant (CNY ¥/year)
p_2	DALY probability associated with decentralized plant (%)
C_{G2}	total cost of the decentralized plant from perspective of MAC (CNY ¥)
X_2	cost savings on constructing pipes (CNY ¥)
C_L	unit construction costs (CNY ¥/m)
L	pipe length (m)
O_2	benefit of increased water availability of decentralized plant (CNY ¥/year)
e_2	reused water amount of decentralized plant (m^3)
A_2	benefit of raising social awareness on water saving (CNY ¥/year)
a	average cost of public campaign in water sector (CNY ¥/year)
j	ratio of number of users to the total population of Beijing (%)

Table S1. *Cont.*

Parameter	Definition
B_{G2}	total benefit of decentralized plant from perspective of MAC (CNY ¥)
C_{E1}	total cost of centralized plant from perspective of MEPB (CNY ¥)
C_{E2}	total cost of decentralized plant from perspective of MEPB (CNY ¥)
B_{E1}	total benefit of centralized plant from perspective of MEPB (CNY ¥)
B_{E2}	total benefit of decentralized plant from perspective of MEPB (CNY ¥)
R_1	revenue of centralized plant (CNY ¥/year)
R_2	revenue of decentralized plant (CNY ¥/year)
S_1	subsidies of centralized plant (CNY ¥)
S_2	subsidies of decentralized plant (CNY ¥)
C_{P1}	total cost of centralized plant from perspective of plant manager (CNY ¥)
C_{P2}	total cost of decentralized plant from perspective of plant manager (CNY ¥)
B_{P1}	total benefit of centralized plant from perspective of plant manager (CNY ¥)
B_{P2}	total benefit of decentralized plant from perspective of plant manager (CNY ¥)
m_1	benefits of money saving of centralized plant (CNY ¥/m^3)
m_2	benefits of money saving of decentralized plant (CNY ¥/m^3)
C_{U1}	total cost of centralized plant from perspective of user (CNY ¥/m^3)
C_{U2}	total cost of decentralized plant from perspective of user (CNY ¥/m^3)
Q_1	amount of reused water of centralized plants for domestic and landscape usage (m^3)
Q_2	amount of reused water of decentralized plants for domestic and landscape usage (m^3)
B_{U1}	total benefit of centralized plant from perspective of user (CNY ¥/m^3)
B_{U2}	total benefit of decentralized plant from perspective of user (CNY ¥/m^3)