**Data of natural, produced, and human capital model and historical DO, BOD.**

Table 1. Variables and their data sources for the water quality sub-model

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| List | Parameters | Values | Unit | Sources |
| 1 | River flow for Scenarios 1, 2, and 3 | 5 and 160 | m3/s | (Rahman et al., 2013; Ministry of Water Resources, 2019) |
| 2 | Reoxygenation Coefficient (K2)  (Scenarios 1, 2, and 3) | 0.16 and 0.986 | 1/year | (Ugbebor et al., 2012; Fatema et al., 2018) |
| 3 | DO saturation | 9.17 | mg/L | Liu, 2005 |
| 4 | Initial dissolved oxygen | 2.385 | mg/L | (Bashar and Fung, 2020; Khan et al., 2020) |
| 5 | Initial BOD | 34 | mg/L | (Bashar and Fung, 2020; Khan et al., 2020) |
| 6 | BOD decay coefficient (Scenarios 1, 2, and 3) | 0.12 and 0.25 | 1/year | (Liu, 2018) |
| 7 | Initial oxygen solubility time | 3.5 | Year | (FAO, n.d) |
| 8 | BOD per person | 0.4 | mg/L/person | Appendix A |

Table 2. Historical field data of DO and BOD in Turag-Buriganga river system

|  |  |  |  |
| --- | --- | --- | --- |
| Year | DO (mg/L) | BOD (mg/L) | Sources |
| 2010 | 1.83 | 18.50 | Rahman and Bakri, 2010 |
| 2012 | 4.30 | 29.00 | Rahman et al., 2012 |
| 2013 | 4.30 | 29.90 | Saifullah et al., 2013 |
| 2015 | 2.90 | 30.65 | DoE, 2015 |
| 2018 | 2.02 | 30.00 | Tahmina et al., 2018; Zaman and Hossain, 2018; Fatema et al., 2018 |
| 2020 | 2.38 | 34.00 | Bashar and Fung, 2020; Khan et al., 2020 |

Table 3. Variables and their data sources for the natural capital sub-model

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| --- | --- | --- | --- | --- |
| S. | Parameters | Values | Unit | Sources |
| 1 | Sulfur oxide, nitrogen oxide, and hydrogen fluoride, and dust absorption value | 0.103 | USD/kg | (Hao et al., 2014) |
| 2 | Sulfur oxide, nitrogen oxide, and hydrogen fluoride, and dust capacity | 473799 | Kg/km2 | (Hao et al., 2014) |
| 3 | Per person recreation value | 7.21 | USD/person | (Environment Agency, 2018) |
| 4 | Mental and physical health value | 6 | USD/person | (Environment Agency, 2018) |
| 5 | Fish productivity | 376 | Kg/ha | (Department of Fisheries, 2018) |
| 6 | Fish price | 6 | USD/kg | (Fish Mart, 2020) |
| 7 | River area and distance | 3860 and 162.5 | Ha and km | (Ministry of Water Resources, 2019) |
| 8 | Shadow price of carbon sequestration | 1.5 | USD/ton | (Tol, 2019) |
| 9 | Vegetation area | 102756 | ha | Author’s LULC map (Fig. 3) |
| 10 | Carbon sequestration per hectare | 12.4 | TonC/ha | (DoF, 2018a, b) |
| 11 | Navigation revenue capacity | 5445 | USD/km | (Khorshed and Marinova, 2006) |
| 12 | Water supply rev capacity | 202374 | USD/km2 | (Khorshed and Marinova, 2006) |
| 13 | Irrigation area | 41282 | ha | Author’s LULC map (Fig. 3) |
| 14 | Irrigation value | 172.35 | USD/ha | (Tanveer, 2012) |
| 15 | NC depletion rate | 0.04 | Dmn | (Shimamura and Mizunoya, 2020) |
| 16 | Basin area | 3500 | Km2 | (BBS, 2019) |
| 17 | Soil nutrition and water regulation value | 23 | USD/ton/year | (Hao et al., 2014) |
| 18 | Soil nutrition and water regulation capacity | 30.4 | Ton/km2 | (Hao et al., 2014) |
| 19 | Flood regulation value | 0.0176 | USD/m3/year | (Hao et al., 2014) |
| 20 | Capacity of Flood Regulation | 142900 | m3/km2 | (Hao et al., 2014) |
| 21 | Visitors |  |  | Y=0.019X+0.0621 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lists | Parameters | Value | Unit | Sources |
| 1 | Disability weight | 0.12 | Dmn | (Health Data, 2010; Larsen, 2019) |
| 2 | Disability severity | 0.4 | Dmn | (Larsen, 2019) |
| 3 | Life expectancy | 72.3 | year | (BBS, 2019) |
| 4 | Individual income | 1,909 | USD | (BBS, 2019) |
| 5 | Population affected | 0.11 | % | (Chowdhury et al., 2017) |
| 6 | Initial population | 21,741,000 | person | (UNDP, 2020) |
| 7 | Mean individual working time | 26.95 | year | (Khan & Islam, 2013) |
| 8 | Birth rate | 19.79/1000 | 1/year | (Macrotrends LLC, 2020) |
| 9 | Depreciation | 8.5 | % | (Shimamura and Mizunoya, 2020) |
| 10 | Employment investment | 10.60 | Million USD | (Ministry of Water Resources, 2019) |
| 11 | Number of government employees | 10 | Person | (Ministry of Water Resources, 2019) |
| 12 | Migration rate | 0.018 | 1/year | (World Bank, 2007) |
| 13 | Life expectancy decrements because of water pollution | 1.02 | Year | (Apte et al., 2018) |
| 14 | Average life expectancy | 71.4 | Year | (BBS, 2019; Apte et al., 2018) |
| 15 | Labor cost rate | 0.3 | Dmn | (Shimamura and Mizunoya, 2020) |
| 16 | Dhaka city area | 300 | Km2 | Khatun et al., 2015 |

Table 4. Variables and their data sources for the human capital sub-model

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| Lists | Parameters | Value | Unit | Sources |
| 1 | Construction cost | 67 | Million USD | (Ministry of Water Resources, 2019) |
| 2 | Dredging cost | 5.5 | Million USD/year | (Ministry of Water Resources, 2019) |
| 3 | Number of years for the project | 10 | Year | (Ministry of Water Resources, 2019) |
| 4 | Traffic congestion cost | 3868 | Million USD/Year | (Khan and Islam, 2013) |
| 5 | Operation and management cost rate | 14 | % | (Shimamura and Mizunoya, 2020) |
| 6 | Real discount rate | 10 | % | (Shimamura and Mizunoya, 2020) |
| 7 | Depreciation rate of PC | 4 | % | (Shimamura and Mizunoya, 2020) |
| 8 | Reduced abandon land price | 462,350 | USD/Km2 | (Islam et al., 2005) |
| 9 | Reduced abandoned area | 3.6 | % | Author’s LULC map (Fig. 3) |
| 10 | Rental value change | 5.46 | USD/house/year | (Alam, 2008) |
| 11 | Productivity capacity | 10 | % | Assumption (Financial Express, 2021) |
| 12 | Household size | 4.06 | Person/house | (BBS, 2016) |

Table 5. Variables and their data sources for the produced capital sub-model