**Supporting Material**

**Covid-2019/2020 Pandemic Impacts on the Solid Waste Sector of Rio de Janeiro Municipality, Brazil: Analysis of Waste Production, Challenges, and Recommendations**

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| Table 1S. Descriptives. | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Year** | | **HSW (tons)** | | **HCW (tons)** | | **Recyclables (tons)** | |
| Median |  | 2018 |  | 145013 |  | 56.5 |  | 3704 |  |
|  |  | 2019 |  | 143005 |  | 38.0 |  | 3758 |  |
|  |  | 2020 |  | 144835 |  | 47.0 |  | 3638 |  |
|  |  | 2021 |  | 141855 |  | 54.5 |  | 3747 |  |
|  |  | 2022 |  | 135481 |  | 44.5 |  | 4913 |  |
| Minimum |  | 2018 |  | 134147 |  | 36 |  | 3275 |  |
|  |  | 2019 |  | 131792 |  | 33 |  | 3190 |  |
|  |  | 2020 |  | 128694 |  | 34 |  | 3079 |  |
|  |  | 2021 |  | 134188 |  | 44 |  | 3108 |  |
|  |  | 2022 |  | 124237 |  | 39 |  | 4682 |  |
| Maximum |  | 2018 |  | 163747 |  | 67 |  | 4404 |  |
|  |  | 2019 |  | 155666 |  | 44 |  | 4717 |  |
|  |  | 2020 |  | 164295 |  | 55 |  | 4417 |  |
|  |  | 2021 |  | 158698 |  | 71 |  | 6372 |  |
|  |  | 2022 |  | 151005 |  | 58 |  | 5560 |  |
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|  |
|  |
| Shapiro-Wilk p |  | 2018 |  | 0.776 |  | 0.031 |  | 0.773 |  |
|  |  | 2019 |  | 0.861 |  | 0.822 |  | 0.246 |  |
|  |  | 2020 |  | 0.187 |  | 0.500 |  | 0.238 |  |
|  |  | 2021 |  | 0.151 |  | 0.067 |  | 0.011 |  |
|  |  | 2022 |  | 0.191 |  | 0.192 |  | 0.034 |  |
|  | | | | | | | | | |

| Table 2S. Kruskal-Wallis test. | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **χ²** | | **df** | | **p** | |
| HSW (tons) |  | 12.8 |  | 4 |  | 0.012 |  |
| HCW (tons) |  | 23.0 |  | 4 |  | < .001 |  |
| Recyclables (tons) |  | 25.2 |  | 4 |  | < .001 |  |
|  | | | | | | | |

| Table 3S. Pairwise comparisons – HSW (tons). | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **W** | | **p** | |
| 2018 |  | 2019 |  | -1.0614 |  | 0.945 |  |
| 2018 |  | 2020 |  | -0.5715 |  | 0.994 |  |
| 2018 |  | 2021 |  | -1.5513 |  | 0.809 |  |
| 2018 |  | 2022 |  | -4.3274 |  | 0.019 |  |
| 2019 |  | 2020 |  | 0.0816 |  | 1.000 |  |
| 2019 |  | 2021 |  | -0.4899 |  | 0.997 |  |
| 2019 |  | 2022 |  | -3.3476 |  | 0.124 |  |
| 2020 |  | 2021 |  | -1.3064 |  | 0.888 |  |
| 2020 |  | 2022 |  | -3.5109 |  | 0.095 |  |
| 2021 |  | 2022 |  | -4.0008 |  | 0.038 |  |
|  | | | | | | | |

| Table 4S. Pairwise comparisons – HCW (tons). | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | | **W** | | **p** | |
| 2018 |  | 2019 |  | -3.6814 |  | 0.070 |  |
| 2018 |  | 2020 |  | -1.9630 |  | 0.636 |  |
| 2018 |  | 2021 |  | -0.0818 |  | 1.000 |  |
| 2018 |  | 2022 |  | -1.1862 |  | 0.919 |  |
| 2019 |  | 2020 |  | 3.4375 |  | 0.107 |  |
| 2019 |  | 2021 |  | 5.8469 |  | < .001 |  |
| 2019 |  | 2022 |  | 4.8342 |  | 0.006 |  |
| 2020 |  | 2021 |  | 3.9678 |  | 0.040 |  |
| 2020 |  | 2022 |  | -0.3285 |  | 0.999 |  |
| 2021 |  | 2022 |  | -4.0923 |  | 0.031 |  |
|  | | | | | | | |

| Table 5S. Pairwise comparisons – Recyclables (tons) | | | | | | | |
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|  | |  | | **W** | | **p** | |
| 2018 |  | 2019 |  | 0.980 |  | 0.958 |  |
| 2018 |  | 2020 |  | -1.103 |  | 0.937 |  |
| 2018 |  | 2021 |  | -0.163 |  | 1.000 |  |
| 2018 |  | 2022 |  | 5.879 |  | < .001 |  |
| 2019 |  | 2020 |  | -2.449 |  | 0.415 |  |
| 2019 |  | 2021 |  | -0.735 |  | 0.985 |  |
| 2019 |  | 2022 |  | 5.797 |  | < .001 |  |
| 2020 |  | 2021 |  | 0.735 |  | 0.985 |  |
| 2020 |  | 2022 |  | 5.879 |  | < .001 |  |
| 2021 |  | 2022 |  | 3.919 |  | 0.044 |  |