

Statistics of solid urban waste: from micro to macro context of students

Every day, millions of tons of all types of material are discarded in our homes, but have you ever wondered about the amount of recyclable and organic waste that you produce each day? Is that number lower or higher than the world average? And the Brazilian average? Let's find out.

This project presents a statistical analysis of the amount of garbage generated in the houses of participating students in the city of Rio Grande, located in Rio Grande do Sul - Brazil, by comparing this data with the state, regional, national and world average.

The data was collected in two ways:

- articles, news and research published on the internet;
- survey with high school students from an institute.

Figure 1 - Beach cleaning at Praia do Cassino



Source: Prefeitura de Rio Grande, 2020.

Beach cleaning at Praia do Cassino, in Rio Grande removes 13,380 tons of garbage from the sand. [1]

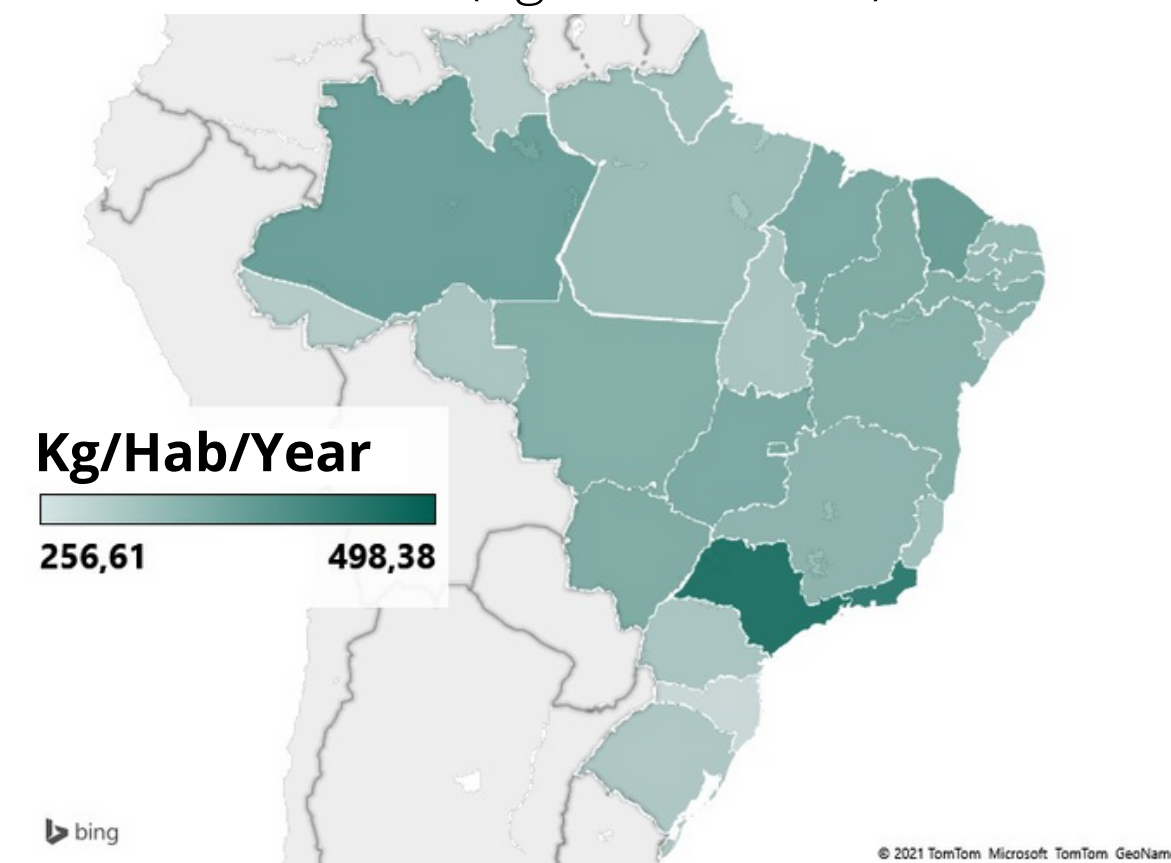
Worldwide:

Since 1950, the generation of plastics has grown constantly. In that year, the production was 1.8 million tons per year. In 2018, that number reached 456 million tons per year. [2]

In Brazil:

Between 2010 and 2019, the solid waste generation increased from 67 million to 79 million tons per year. Of the waste disposed of in 2020, 13.35 million were plastic. On the other hand, the portion of collected waste grew across the country, from 88% to 92% coverage. [3]

Figure 2 - Waste produced in Brazilian states in 2020 (Kg / Hab / Year).



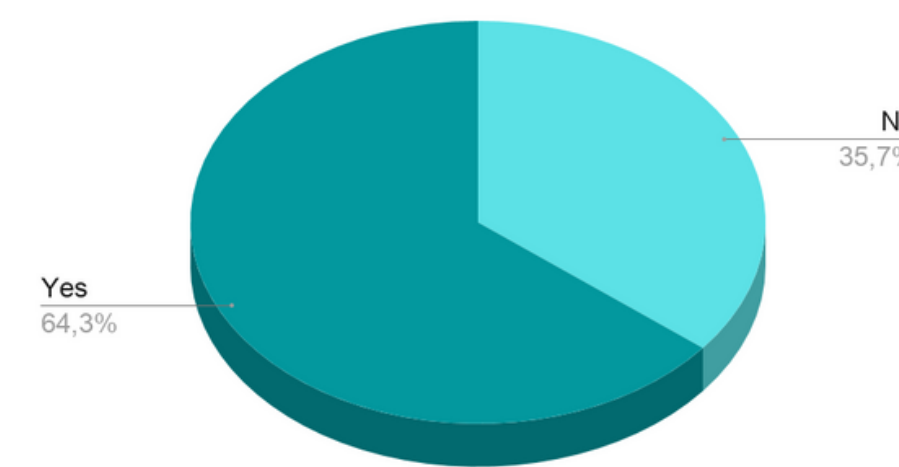
Source: Author

In Rio Grande do Sul, 3,147,030 tons of solid urban waste were produced in 2019. [3]

It is among the 10 states in Brazil that have a selective collection coverage index above the national average, with 95.5% rate. [3]

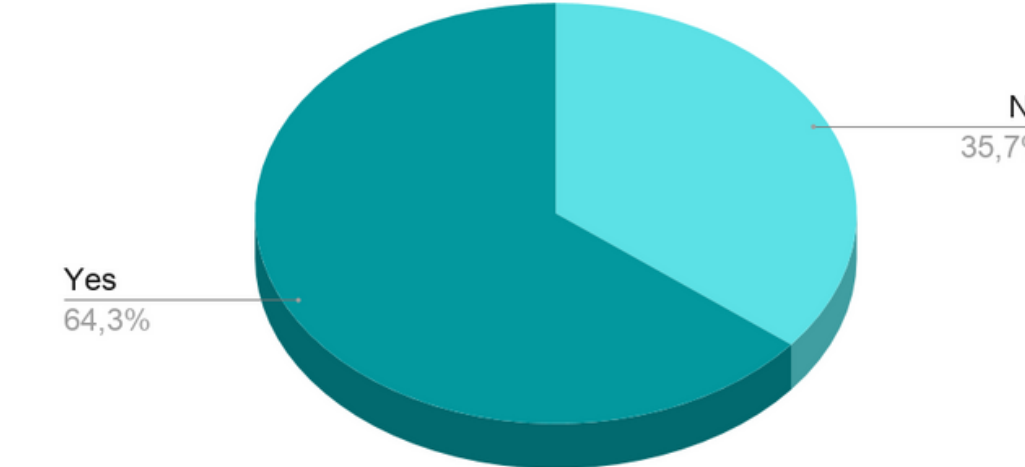
The survey data about the destination of solid waste generated by the participating students are displayed in Figures 3, 4 and 5.

Figure 3 - Is there selective collection in your street?



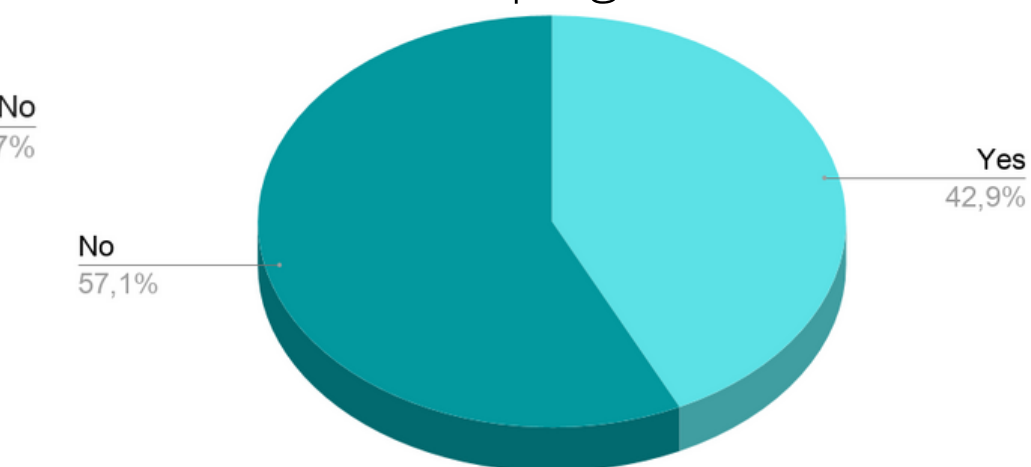
Source: Author

Figure 4 - Do you separate organic waste from recyclable waste in your house?



Source: Author

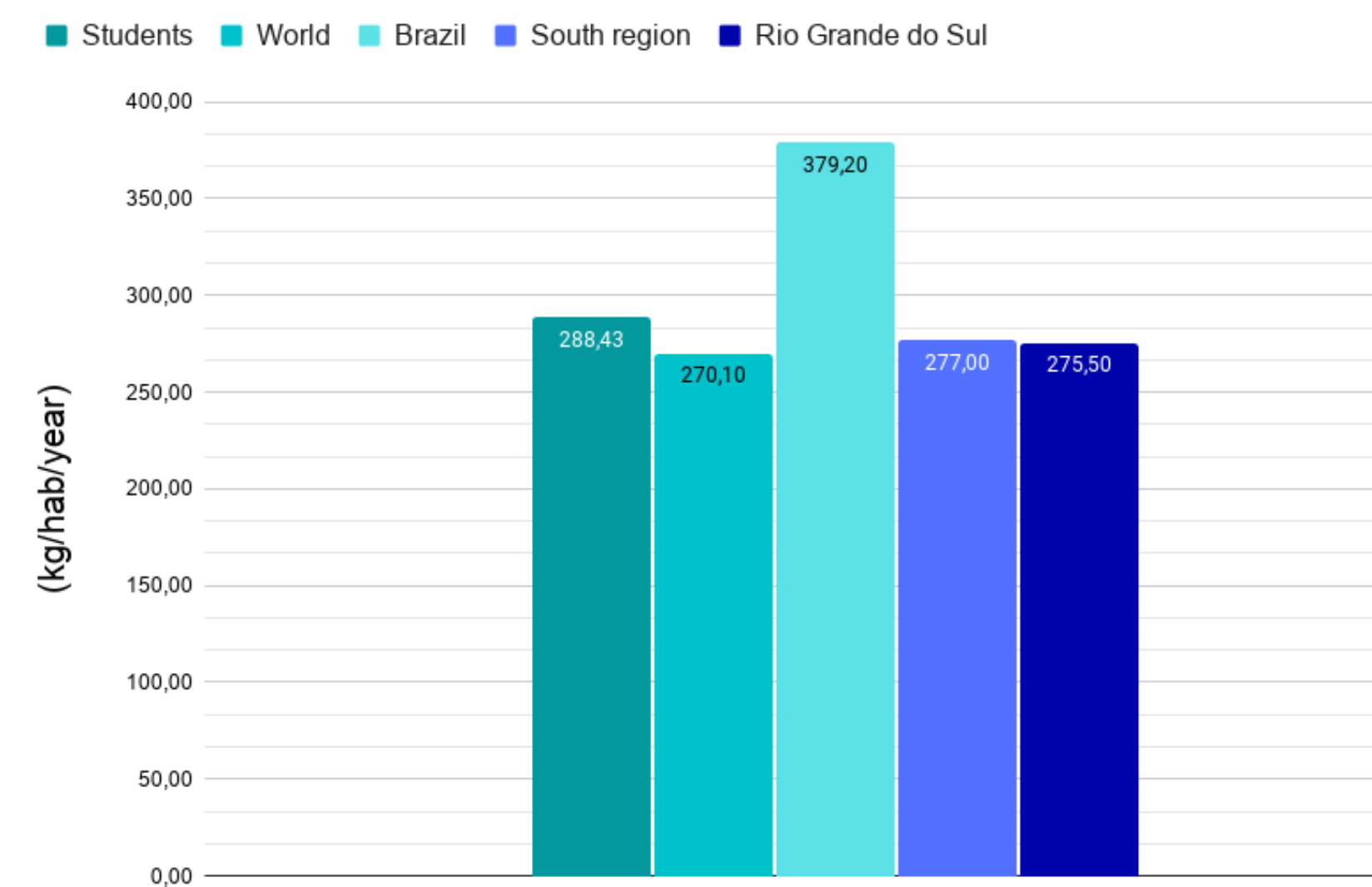
Figure 5 - Do you separate from the garbage, materials that are collected in campaigns?



Source: Author

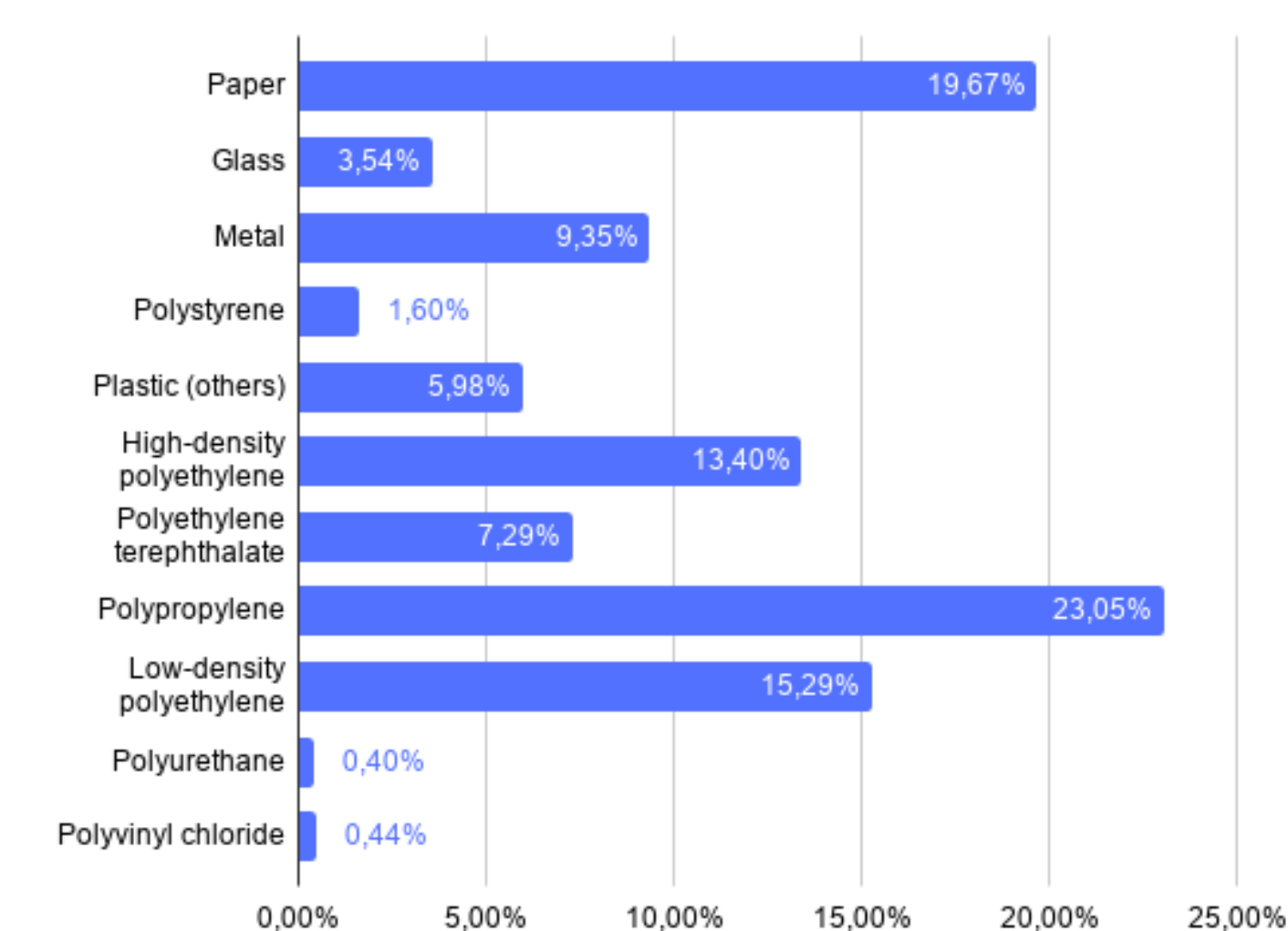
The results on the type and quantity of these residues are shown in Figures 6 and 7. Figure 6 compares the average waste generated by the students, in Rio Grande do Sul state [3], in south region [3], in Brazil [3] and worldwide [4]. Figure 7 indicates the characterization of material types waste present in the selective disposal, produced by students who make the separation in their houses.

Figure 6 - Average garbage generation by location



Source: Author

Figure 7 - Student waste composition



Source: Author

It was evidenced that the amount of waste generated by students is higher than the world and the Rio Grande do Sul state averages, whereas lower than the Brazilian average. In view of these facts and the acknowledgement of the global trend of waste generation growth, it was concluded that the approach of the theme in the school context, supported by statistical data, is extremely relevant to promote young people's comprehension on the subject.

[1] Prefeitura de Rio Grande. Task force in Praia do Cassino removes more than 13 thousand tons of garbage. Prefeitura de Rio Grande, 2020. Available in: <https://www.riogrande.rs.gov.br/pagina/mutirao-da-prefeitura-na-praia-retira-mais-de-13-mil-toneladas-de-lixo-no-cassino/>. Accessed on: March 5, 2021.

[2] GEYER, Roland. JAMBECK, Jenna R. LAW, Kara Lavender. Production, use, and fate of all plastics ever made. Science Advances, 2017. Available in: <https://advances.sciencemag.org/content/3/7/e1700782>. Accessed on: March 6, 2021.

[3] Abrelpe.Panorama of solid waste in Brazil 2020. Abrelpe, 2020. Available in: <https://abrelpe.org.br/panorama/>. Accessed on: March 5, 2021.

[4] KAZA, Silpa et al. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Open Knowledge Repository, 2018. Available in: <https://openknowledge.worldbank.org/handle/10986/30317>. Accessed on: March 6, 2021.