

# REFE Project - Final Report of the Results following Ecological Footprint Testing

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REFE project aims to raise the awareness of the youth of humanity's lifestyle impact on the health of our planet. It focuses on participants' understanding of how they affect the capacity of the environment to sustain their current way of living. Educating the younger generations is the best way to secure a better future for humanity.

Furthermore, the participants can see that, by modifying some of the aspects of their current lifestyle, they can actively participate in the long-term protection of the Earth, by making more sustainable decisions from this point forward, having a significant contribution to the health of the ecosystem.

The ecological footprint test is an assessment tool to analyse the impact of human lifestyle on the planet. It encompasses eight main categories that reflect how human consumptions and activities affect the environment. These categories reflect the human footprint on the planet, directly assessing water usage, transportation means, housing, electricity consumptions, and indirectly by analysing impact related to goods consumption: food, clothing. All the scores awarded to each question have a statistical background to better assess the overall impact. Some answers have negative scores, because they positively affect the environment, therefore reducing the total. The number of points is converted into the number of planets needed to support the whole population if all inhabitants would have the current behaviour of the applicant, and the test can be analysed by making smaller or bigger changes to see how these changes improve the ecological footprint. Thus, the test is also a tool for awareness and ecological education.

**A group of 20 young people participated in ecological footprint testing in May and June 2021. They were taught how to live more sustainably during a two-week camp in Maramureş, Romania, in August 2021, where a second round of testing happened. The third testing took place upon their return to their home cities, next year in June 2022.**

### **Observations and conclusions based on the three ecological footprint testings (2021-2022)**

It is more and more clear that we humans are the most consuming species of this planet. We are also seeing a constant population growth, so the pressure on nature to provide for us is ongoing and increasing. We are now witnessing the side effects of humanity's greatest leaps: agriculture and industrial revolution. Both gave remarkable gifts for many humans ranging from food access to the possibility of buying the newest smart phone or to conquer even space. But both paved the way to overconsumption which adds immense strain on the nature's capacity to provide. If we want to answer the question of how big is this pressure, we can use ecological footprint assessment tool which transforms your way of living in numbers of planets needed to sustain that life. Keep in mind that the mean values calculated for all the countries clearly show that some countries live well above their means (those that have good economic growth), while poor countries live with much less, and one of the issue is the fact that developed countries threaten that too.

The test focuses on the main categories that best describe the way we live: water usage, the type and of food, housing, transportation, as well as consumption related to clothes and things we own. It also includes answers that are scored with negative values, since that behaviour can relieve some of the pressure we have on earth's resources: such as recycling, use of energy efficient appliances or composting food waste.

Our participants come from two of the biggest cities in Romania: Bucharest (which is also the capital) and Iaşi and are youngsters, with ages ranging from 12-21 years. This period is crucial because they are old enough to be aware of the personal impact they have and also to make changes for a more sustainable future. Firstly, we analysed the initial testing (which had incomplete answers) in order to have an idea about the quality and range of testing within this type of group. Figures 1 and 2 show the results we obtained in our initial testing.

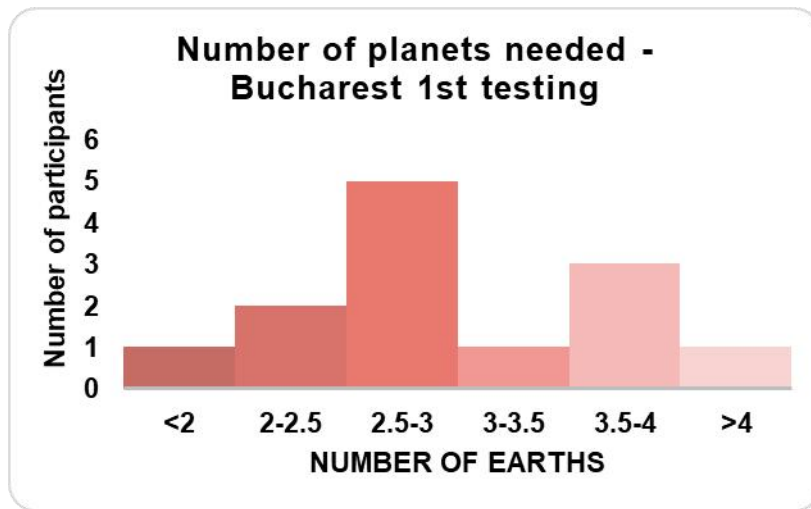


Figure 1. Distribution of number of Earths needed for Bucharest group – first testing

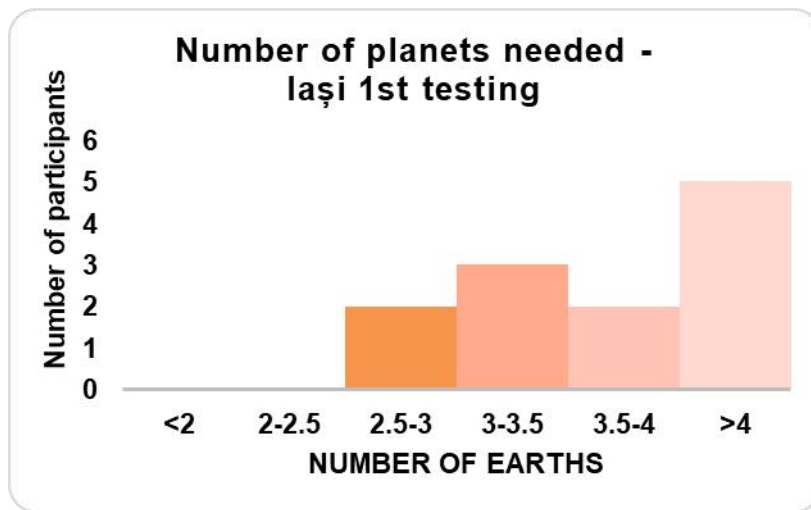
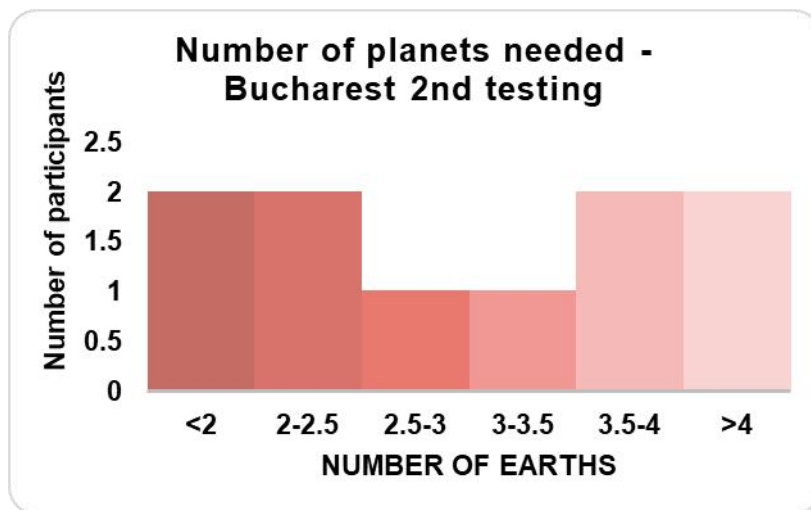


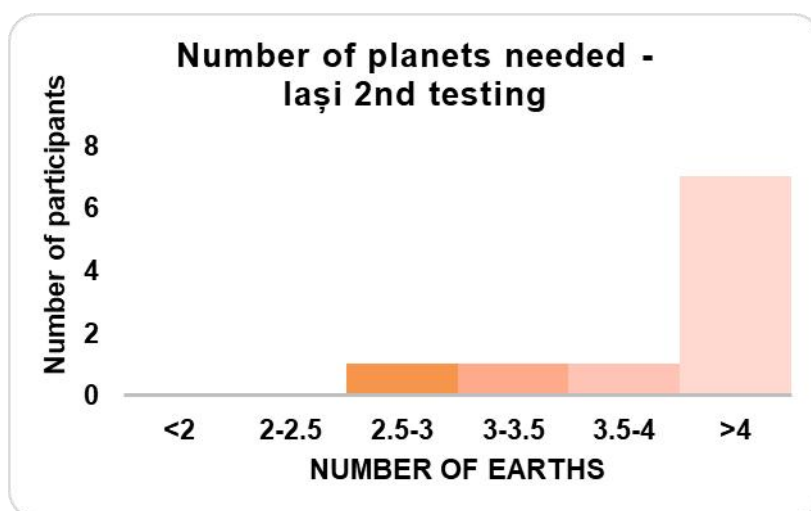
Figure 2. Distribution of number of Earths needed for Iași group – first testing

As we can see, most of the participants require more than two or three Earths, which is the situation for our country. **On average, we obtained a value of 3.14 planets for Bucharest and 3.86 for Iași. But it's important to keep in mind the age. It's a time when the food consumption could be greater due to the biological development period, which is also related to the need for a more frequent wardrobe cycling.**

After the first test, the questionnaire was improved and calibrated from a vocabulary point of view and was repeated two weeks later to the same pilot group. The new questionnaire included more complete answers and was able to offer a better distinction between the two cities: while the capital is somewhat balanced between less than 2 and around 4 planets, the Iași participants mostly need more than 4 Earths to keep up with their current lifestyle. **This time we calculated an average of 3.06 for Bucharest and 4.86 for Iași participants.**



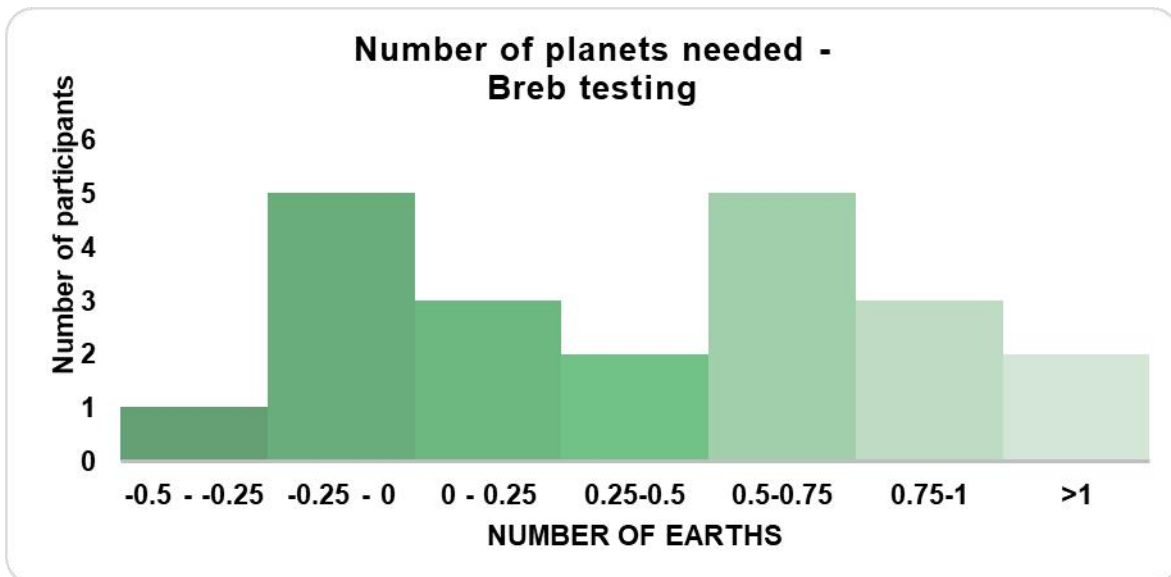
**Figure 3. Distribution of number of Earths needed for Bucharest group – first testing (improved questionnaire)**



**Figure 4. Distribution of number of Earths needed for Iași group – first testing (improved questionnaire)**

The above results are a baseline for the undisturbed way of living, a reference point since after these test, the participants went to a summer camp in Breb, Maramureş County, to better understand how their lifestyle impacts the nature and to be taught how to live in more harmony with mother nature.

Here, in the camp, the conditions were optimized to have a minimal impact on the ecological footprint. And the results are more than significant! Figure 5 shows the distribution of planets needed for the lifestyle spent during the weeks in Breb. **Six students managed to obtain negative scores for the ecological footprint and only two of them obtained more than one planet as a result.**



**Figure 5. Distribution of number of Earths needed during Breb camp**

**All the participants averaged a very small value for this period, of only 0.44 planets needed, which is seen only in countries with very limited resources. A look at the impact distribution by category shows that while food may represent an important contributor, actions can be taken in other categories to counterbalance this (Figures 6 and 7).**

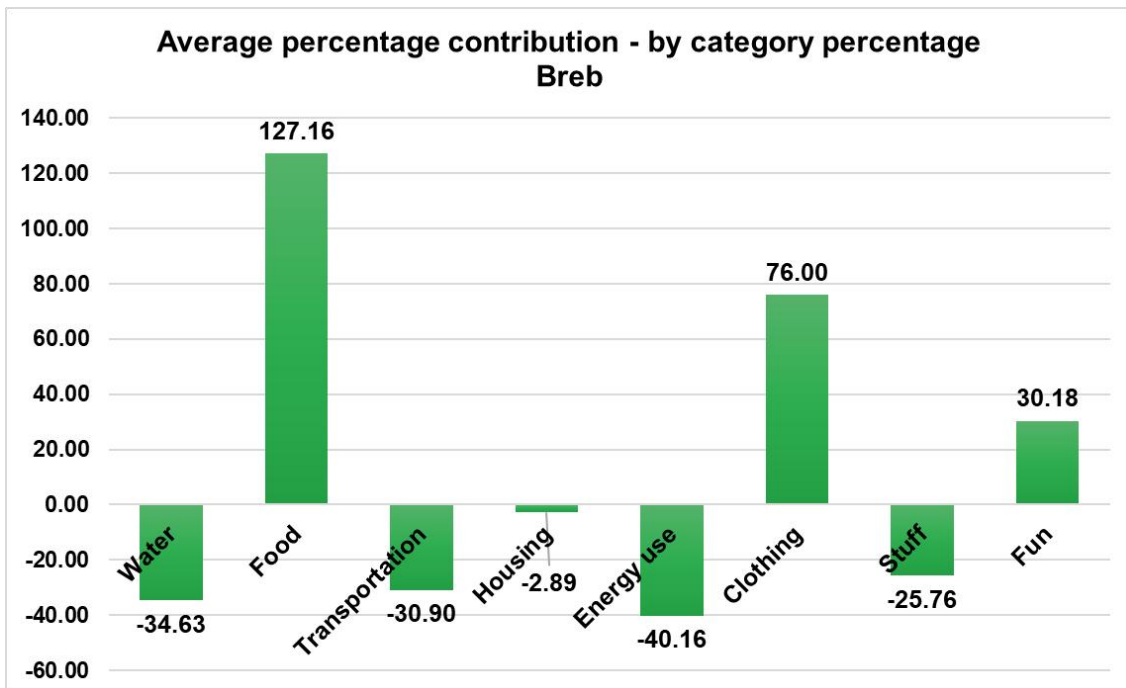


Figure 6. Distribution of categories' percentages contribution to overall footprint – Breb camp

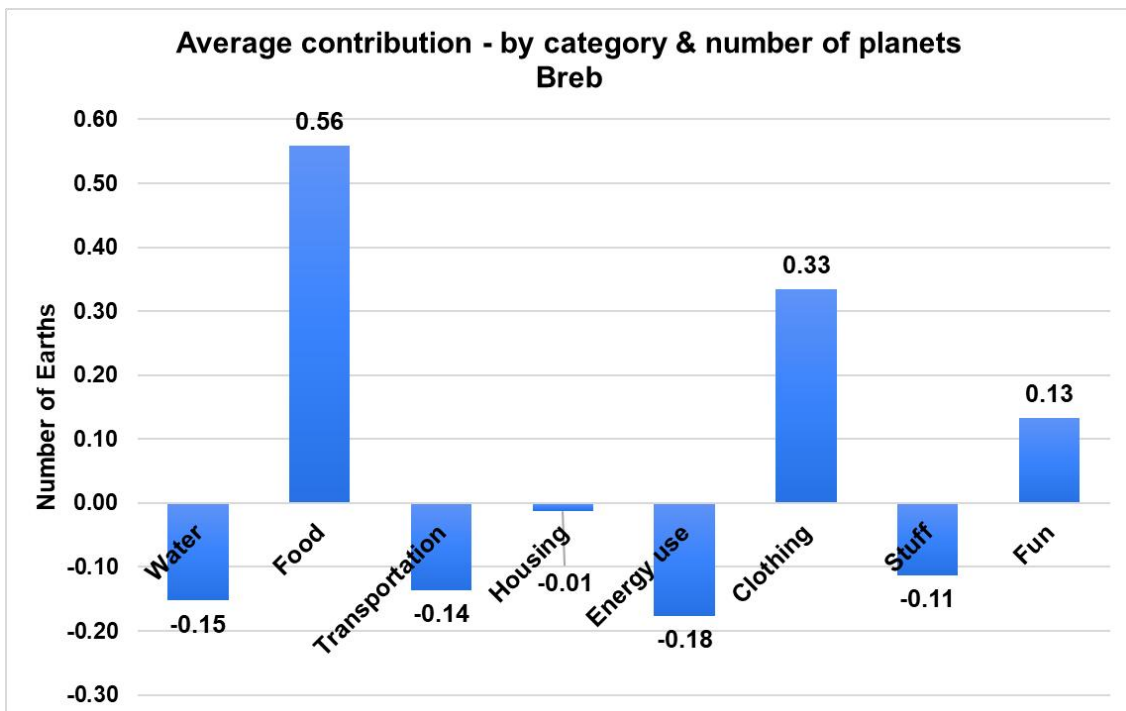
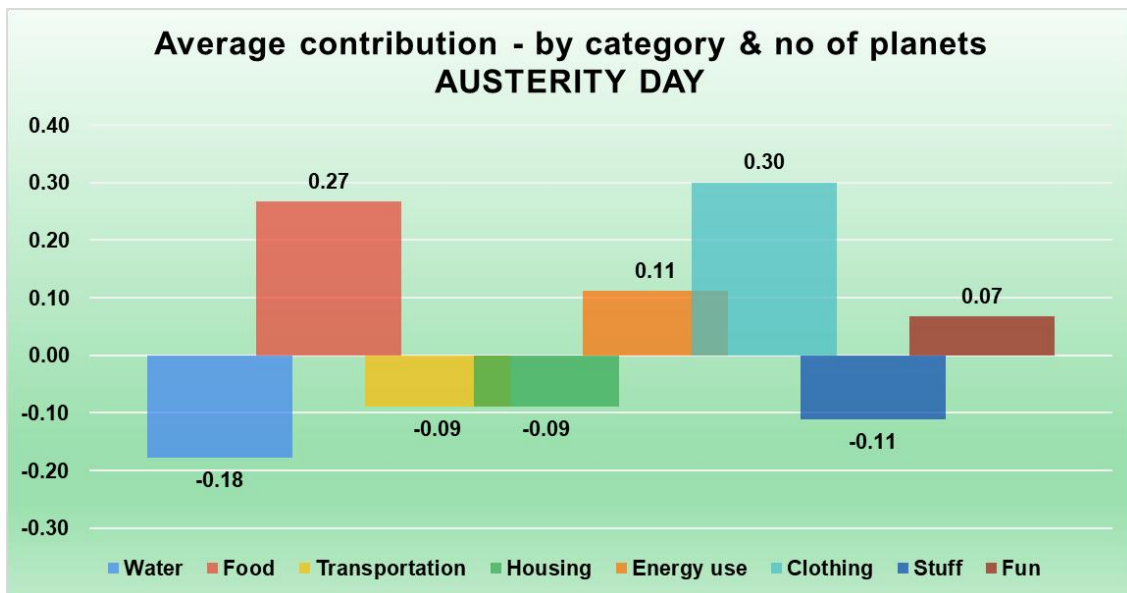


Figure 7. Distribution of categories' contribution (as number of Earths ) to overall footprint – Breb camp

It is not easy to have lived in these conditions that reduced so much the ecological footprint, but since things got here, an attempt to zero the impact was made, **by designing the Austerity day. And the average score for this day leads to a grand total of 0.03 planets, which is a zero**, depending on the number of decimals you want to include. So this leads to the incredible idea that we could live with almost no impact on nature, and actually live, not just survive. Figure 8 shows the distribution of number of planets for each test category.



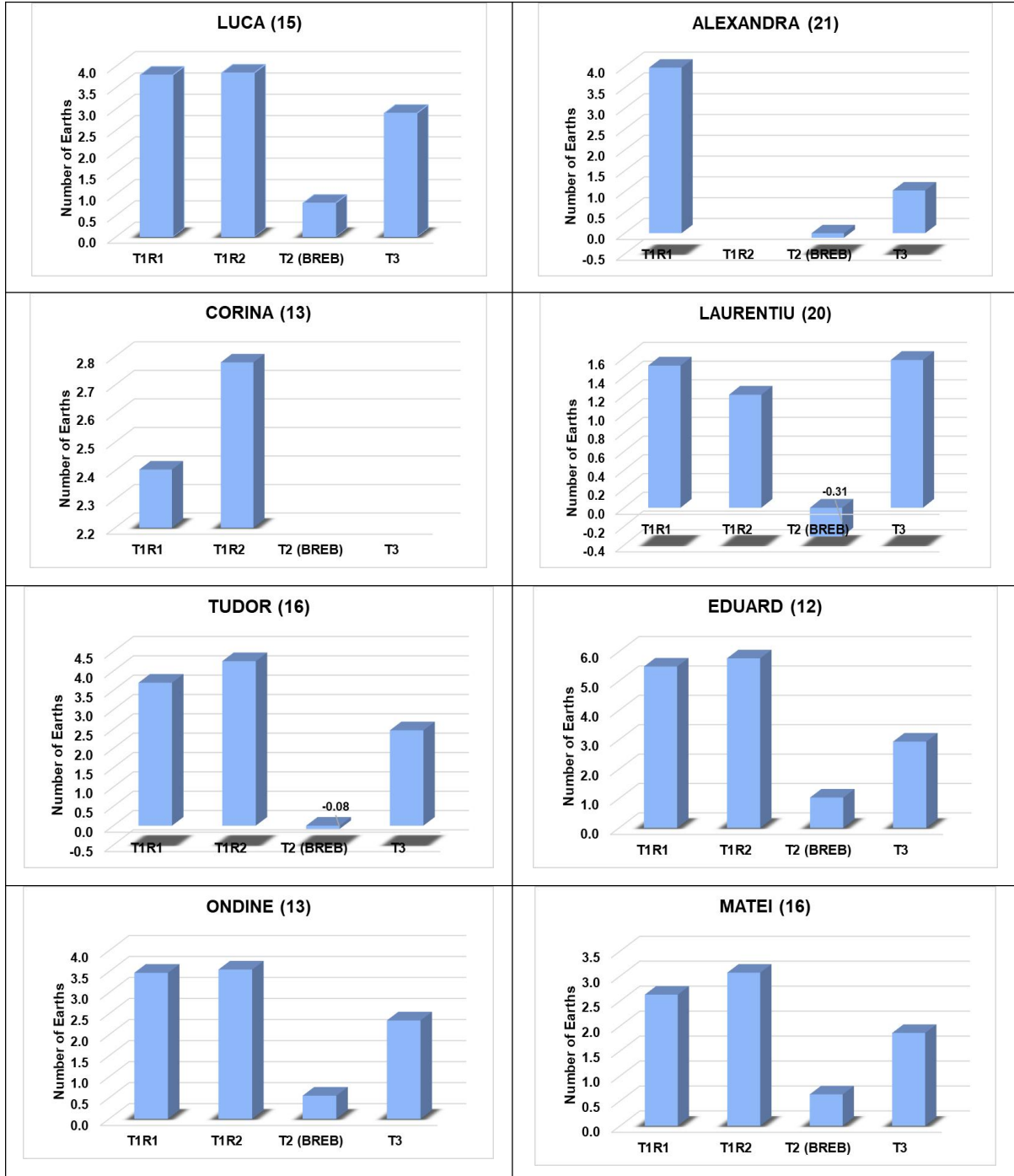
**Figure 7. Distribution of categories' contribution (as number of Earths ) to overall footprint – Austerity Day - Breb camp**

While food and clothing bring the highest scores being the greatest contributors to ecological footprint, things can be improved by responsible water and energy usage, and also by sensible choices regarding the stuff we have and (don't) need. These remarks are both for the general period spent in Breb, but also for the Austerity Day. It is clear that minimal impact can be achieved.

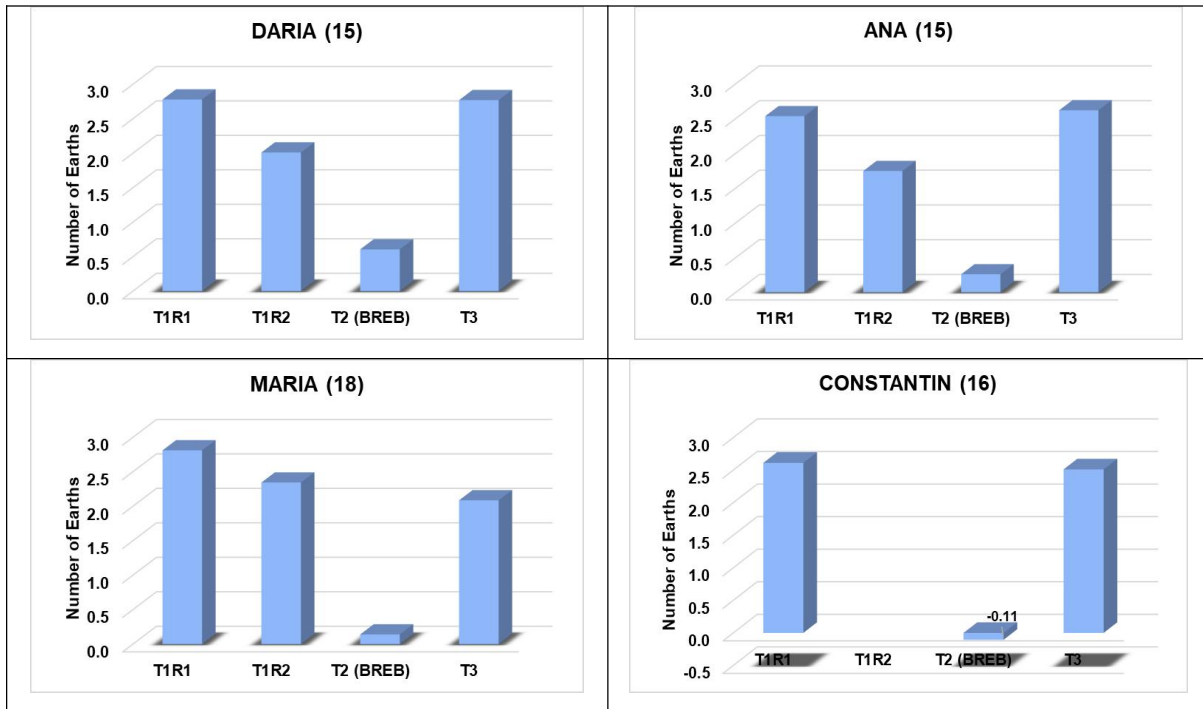
But, while this experience was an eye opener, the important question is how it impacted longer term. We wanted to find out if after this ecological education things improved. The third testing took place months after the Breb camp. Table 1 shows the individual test results for Bucharest group, while Table 2 does the same for Iași group.



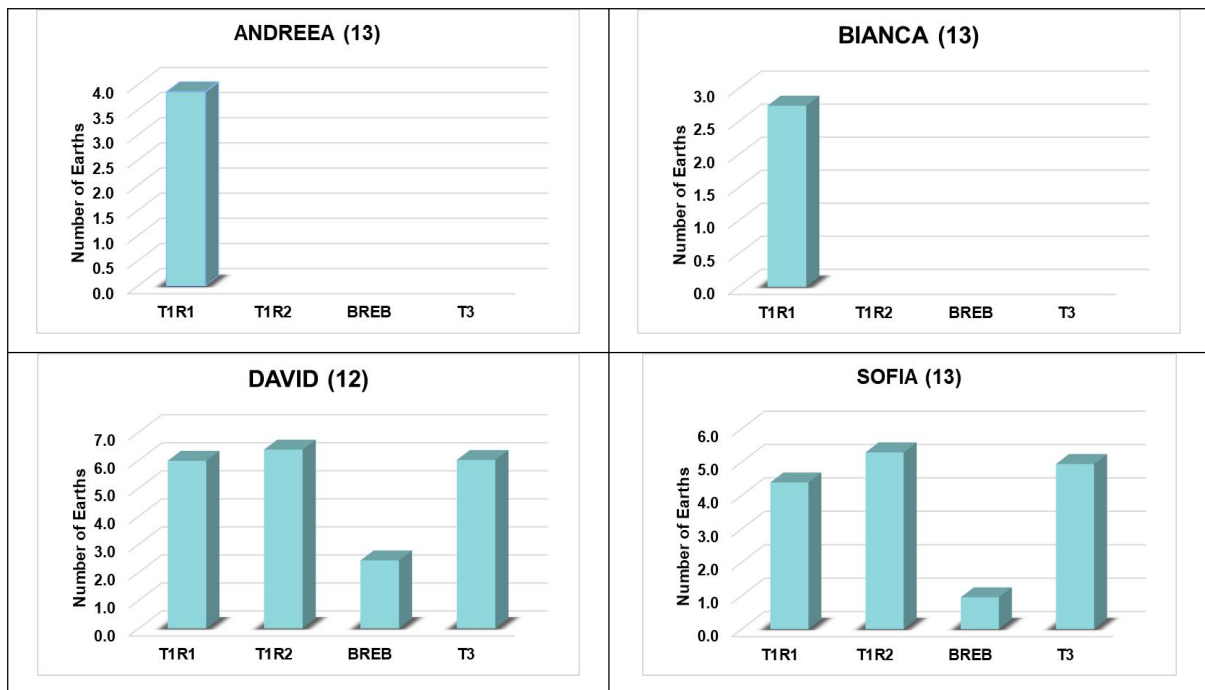
**Table 1. Individual ecological footprint for Bucharest participants – all testing results**

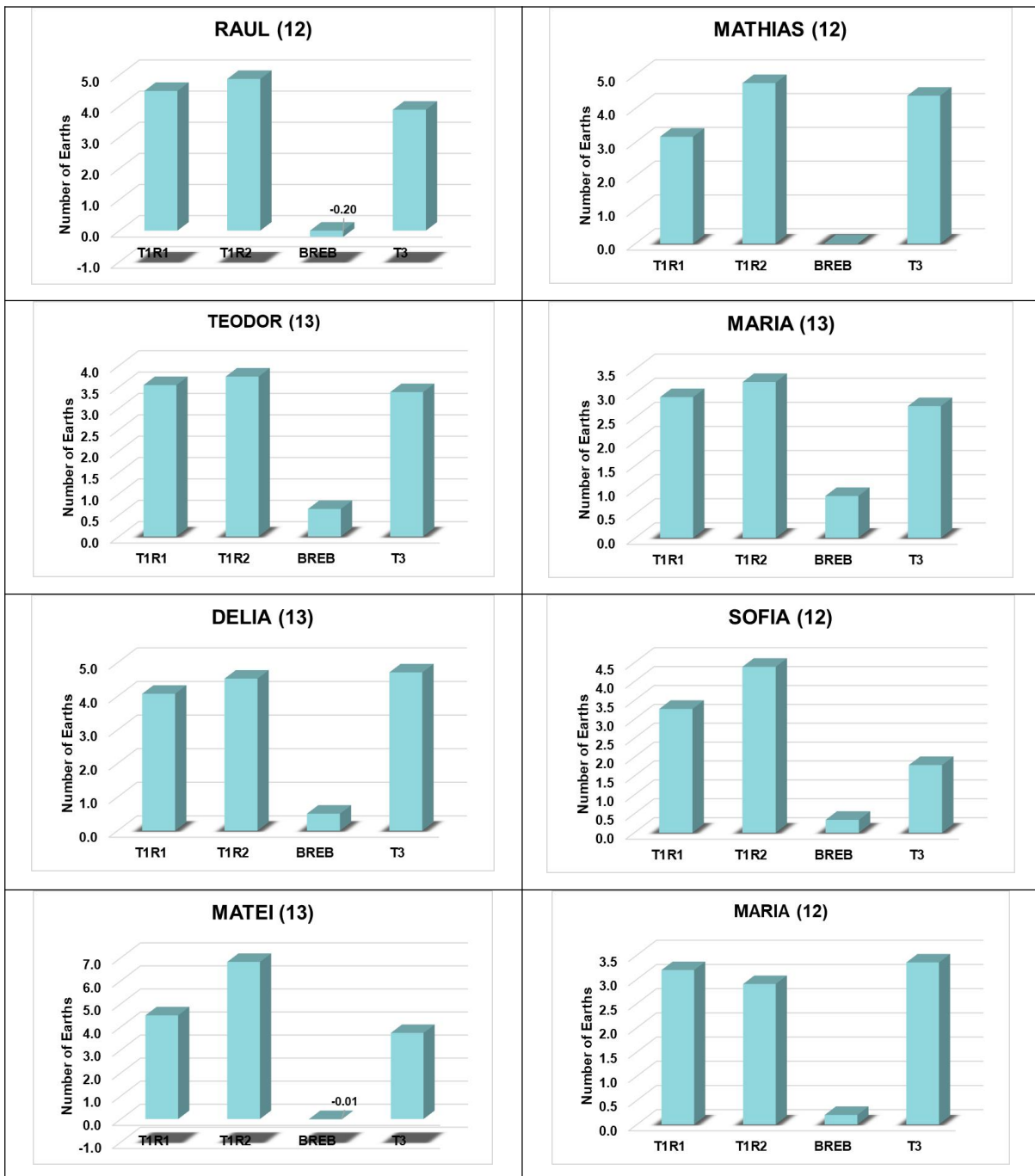






**Table 2. Individual ecological footprint for Iași participants – all testing results**

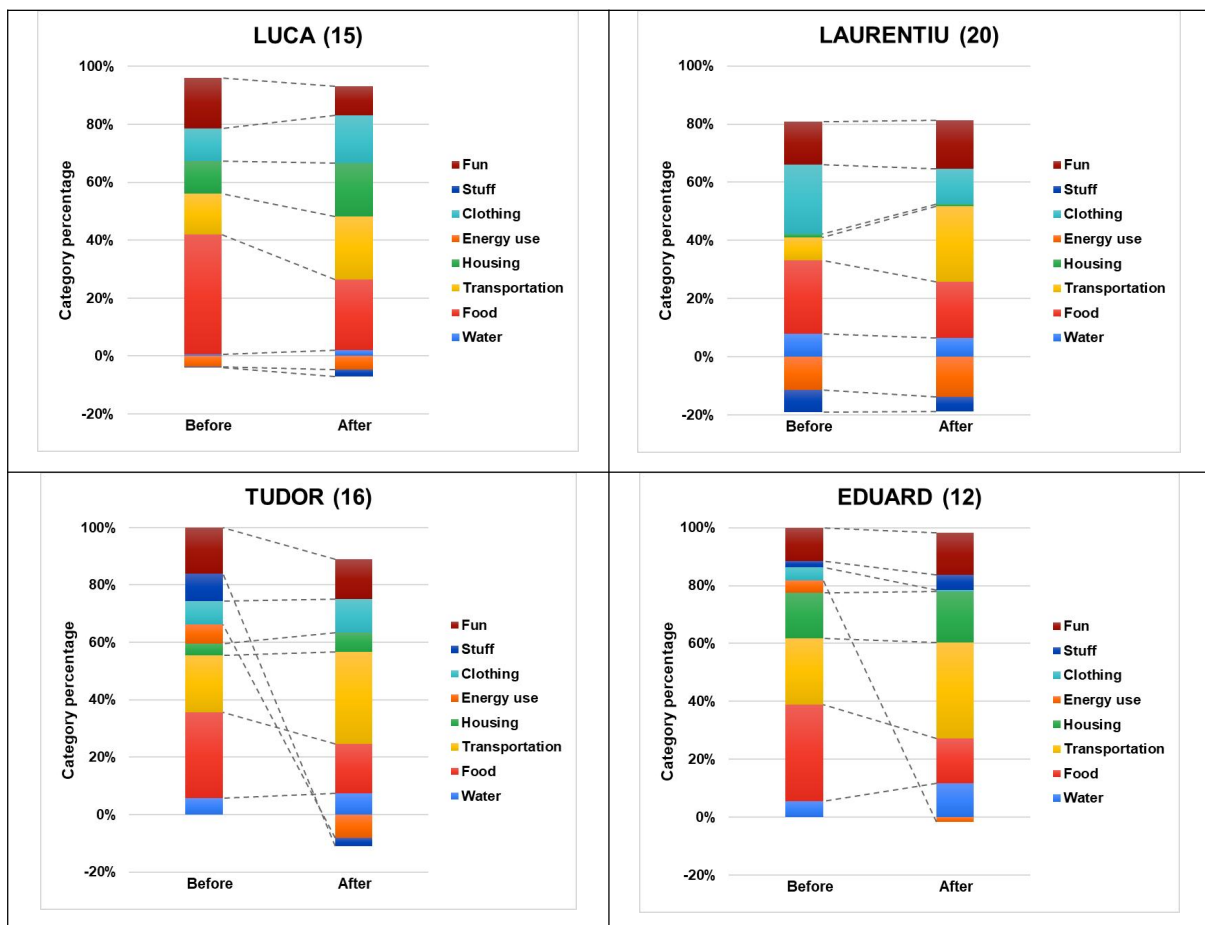


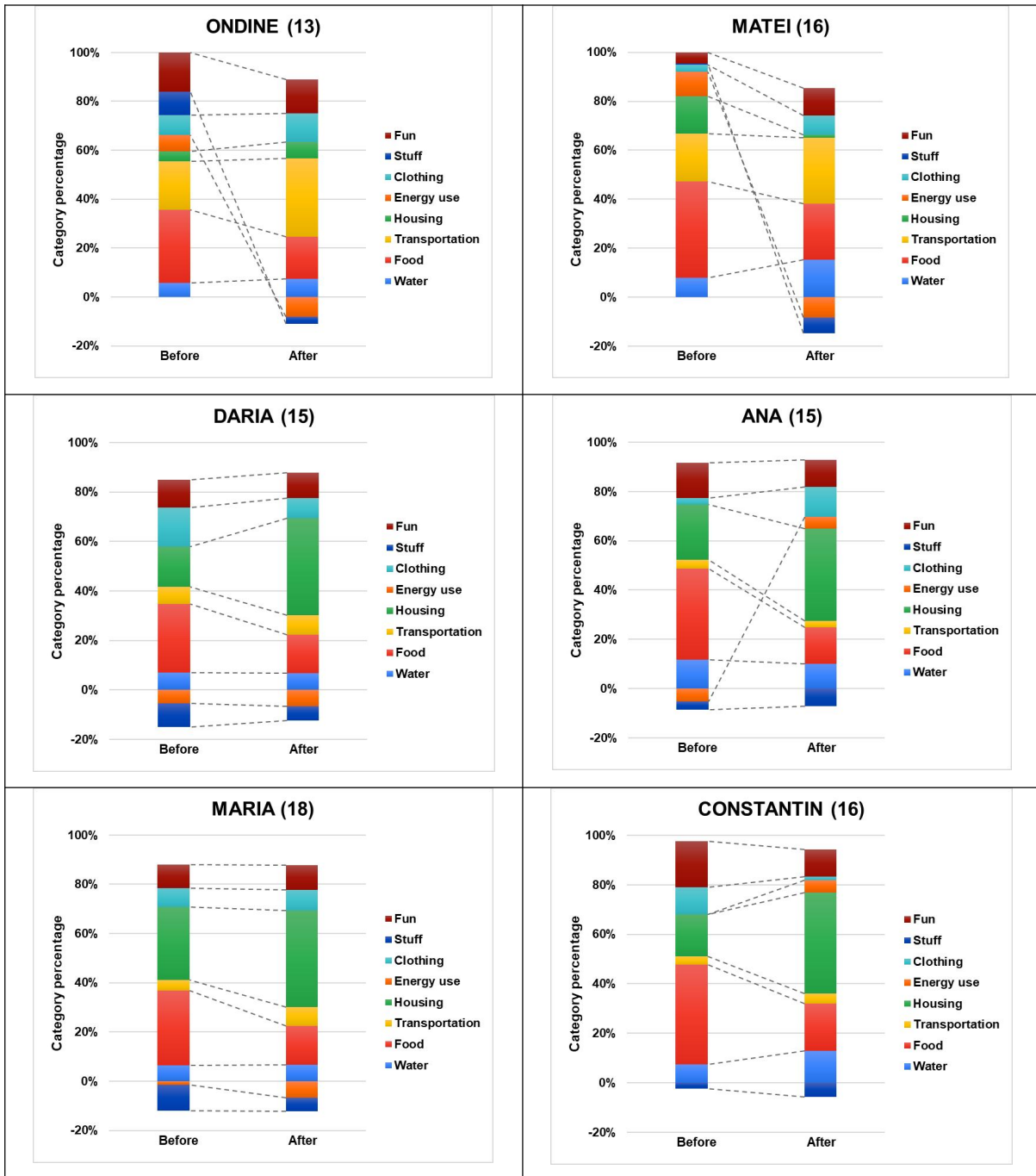


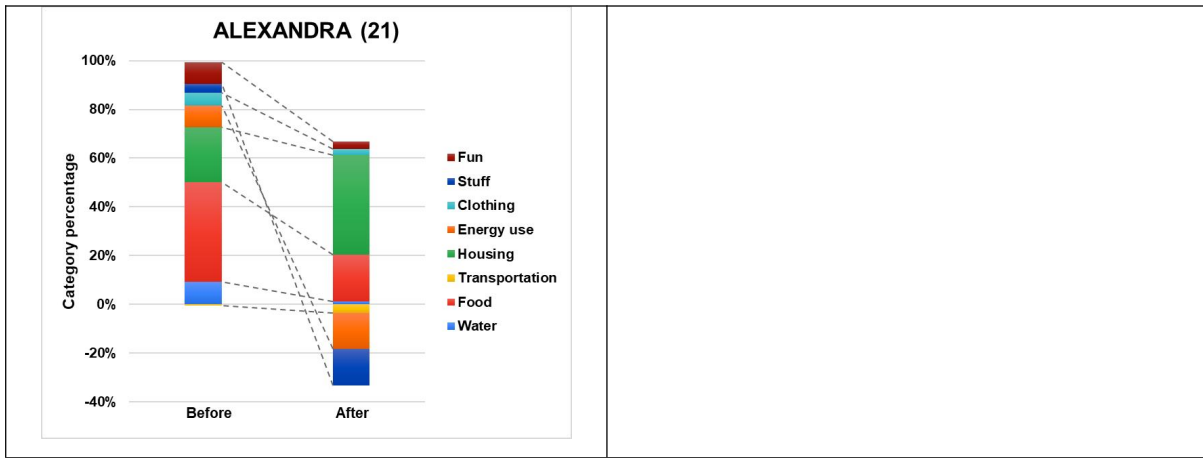
It is clear that Breb camp conditions were very environmental friendly for each participant. For most children, the experience seems to have reduced the impact they have on the environment. **The group from Iași showed a decline of 17.05% of the average number of needed planets (with a reduction of 0.8 Earths), while the group from Bucharest averaged a 25.47% reduction of their impact (a reduction of 0.78 Earths).**

We wanted to further see what prompted these reduced values obtained for the last testing, so we took a look at the impact distributed on the test categories and how did it change after Breb. Tables 3 and 4 show these individual distributions before and after Breb camp.

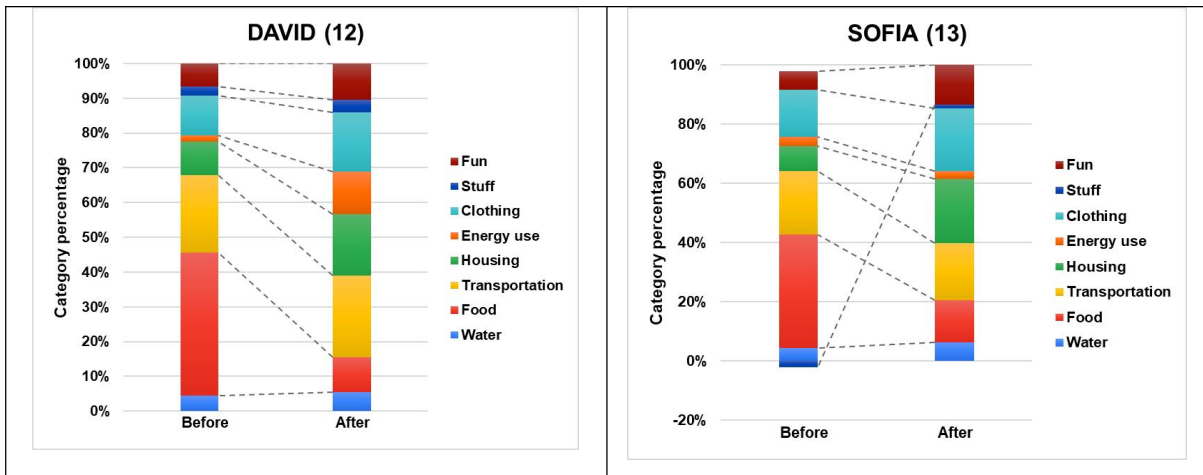
**Table 3. Individual ecological footprint contribution by category before and after Breb for Bucharest participants**

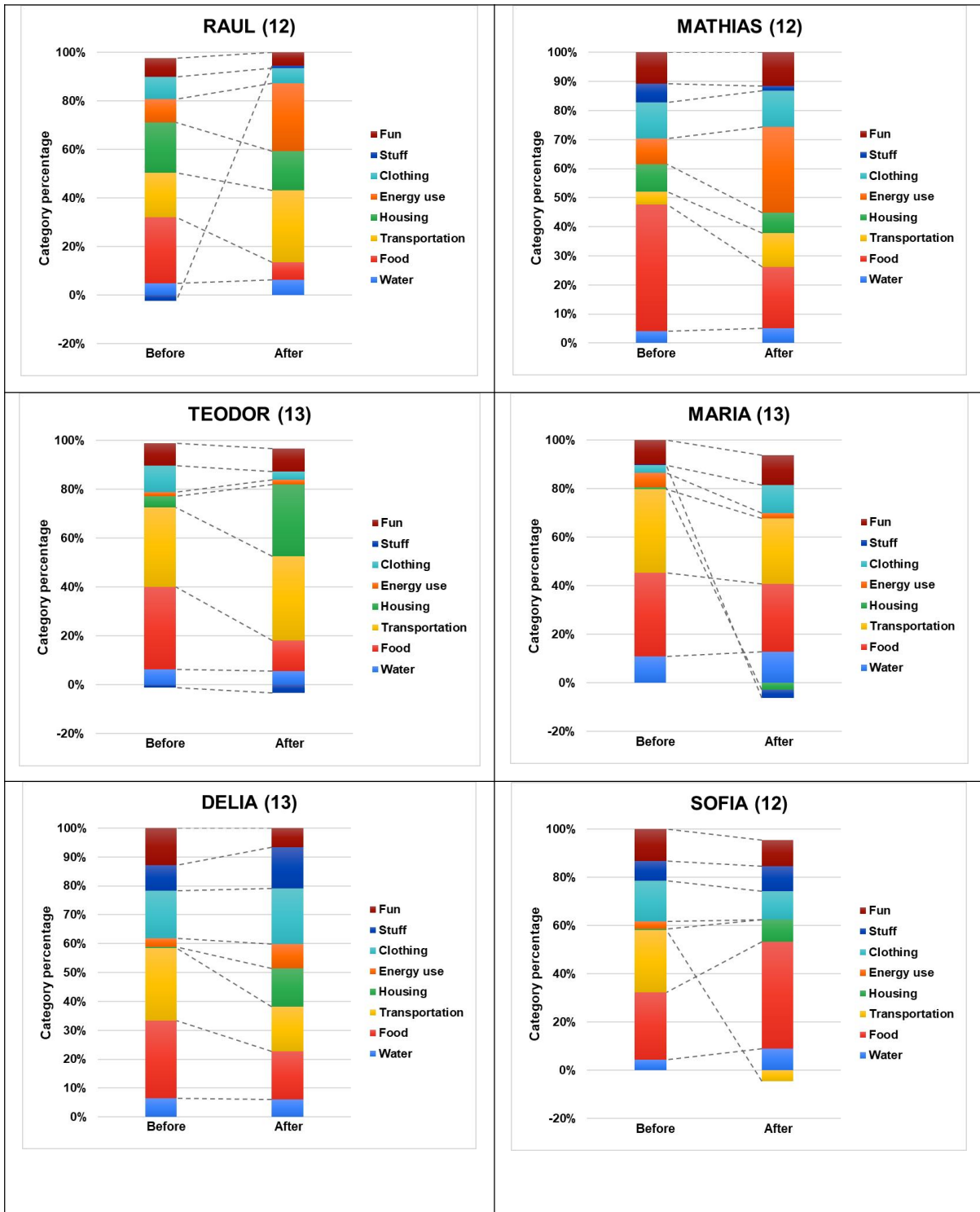


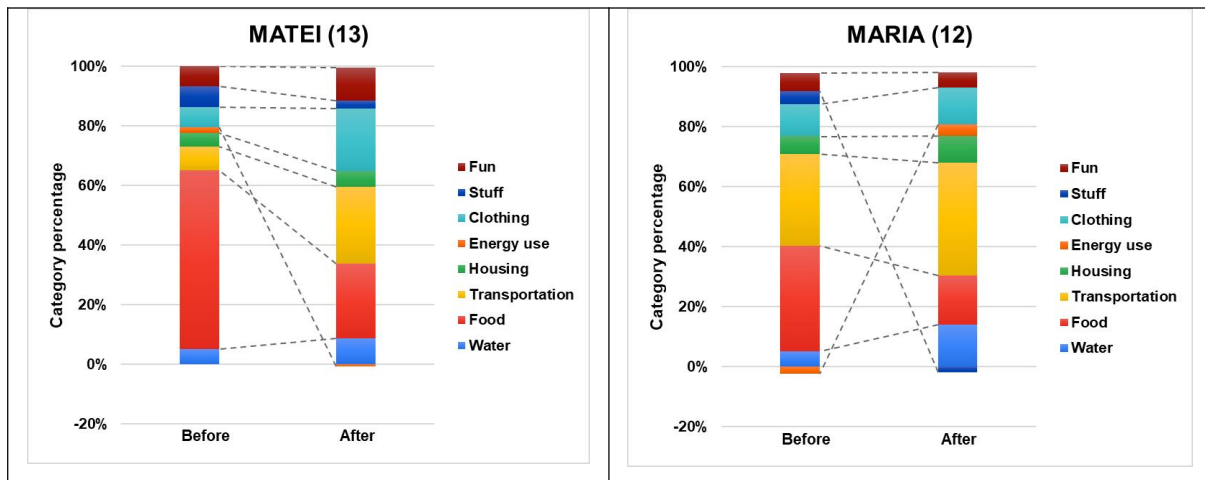




**Table 4. Individual ecological footprint contribution by category before and after Breb for Iași participants**







Food related category is one of the most if not the main contributor to our ecological footprint. For all participants, this impact reduced after Breb camp. This suggests that they were more aware of the food type they eat and also the associated waste. A lot of children said at first that they throw away part of their food, which has an extremely negative impact on the planet – if we think that all the resources and energy spent for something that is simply transformed in waste. Overall, energy use category obtains a very good score because at a national level, most adults (in this case the parents) are accustomed to saving electricity and also because many of the modern equipment is energy efficient. This category can easily be with a negative score if the participants have a responsible behaviour such as turning things off when not in use (lights, TV etc.).

Some categories are more related to the lifestyle imposed by parents, such as housing and transportation. Those are big contributors, since for instance, having an extra house nearly ups the score with almost a planet. Our hope is that when these children become adults they will be more aware and responsible regarding life choices since an in depth analysis shows that it's not all impossible to live a modern life without severely impact the planet. It all comes down to small changes in how we use the world around us. It is also important to underline that a more ecological way of living is also favouring a healthier style for humans too by having a better diet, by walking more instead of using a car, when possible.