**Activity 1.7: Role cards for debate - Wicked dilemma**

|  |  |
| --- | --- |
| **Description of role and aim of organization (if relevant)**(e.g., producer, government, environmental organization, consumer, health organization, animal protection group) |  |
| **Main standpoint/statement in the debate** |  |
| **Argument(s) to substantiate the statement and defend the position** |  |
| **Possible criticism from other (identified) groups** |  |
| **Defense against criticism from above mentioned group(s)** |  |

**Activity 5.2: Template for Life Cycle Assessment (LCA)**

Use this table template as a frame for your analysis of the two different materials, and as help to look at the materials from several perspectives.

|  |  |  |
| --- | --- | --- |
|   | **Original plastic bottle** | **Bottle from Alternative material** |
| **Extraction of raw materials** **-** *e.g. soil, land, seed, fertilizer, irrigation*  |   |   |
| **Manufacturing and processing** **-** *e.g. heating, water, ventilation, electricity* |   |   |
| **Transportation** *- e.g. truck, rail, airplane*  |   |   |
| **Use & trade** *- e.g. disposable or reusable, life cycle*  |   |   |
| **Waste disposal** **-** *e.g. renewable/non-renewable**Raw materials, energy consumption, release of pollutant* |   |  |

**Activity 5.2: Information about, and example of a
Life Cycle Assessment (LCA)**



**Activity 5.2-5.4**





**Activity 5.2-5.4**





**Activity 5.1-5.4**

**Sources to knowledge – information, statistics and calculators**

* Energy used for production of materials
<https://royalsocietypublishing.org/doi/pdf/10.1098/rsta.2012.0003>
* Relative benefit of cardboard and plastic
<https://www.procarton.com/wp-content/uploads/2018/06/PC-Carton-Plastic-Sustainability.pdf>
* Water footprint calculator:
<https://www.watercalculator.org/>
* Environmental footprint calculator. Compare mixed paper, commingled materials, scrap metal and electronics:
<https://www.montgomerycountymd.gov/sws/footprint/>
* Benefit of cardboard and plastic:
[https://www.procarton.com/wp-content/uploads/2018/06/PC-Carton-Plastic-Sustainability.pdf](https://www.procarton.com/wp-content/uploads/2018/06/PC-Carton-Plastic-%20%20Sustainability.pdf)
* Water consumption - Plastic bottles vs. Aluminium cans:
<https://www.reuters.com/article/us-environment-plastic-aluminium-insight-idUSKBN1WW0J5>
* CO2 impact – glass vs plastic bottles:
<https://ecochain.com/story/case-study-packaging-plastic-vs-glass/>
* Energy used for production of materials:
<https://royalsocietypublishing.org/doi/pdf/10.1098/rsta.2012.0003>
* Ranked: the environmental impact of five different soft drink containers
<https://theconversation.com/ranked-the-environmental-impact-of-five-different-soft-drink-containers-149642>
* Should I buy milk in glass, plastic, or cardboard containers?
<https://slate.com/technology/2011/03/should-i-buy-milk-in-glass-plastic-or-cardboard-containers.html>
* Cartons vs. Plastic containers (FIlm)
<https://www.youtube.com/watch?v=lxg9F2CC89k>