

Biodegradable plastic bottled water

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Background:

- There are 'no' scientifically proven health benefits associated with drinking from plastic bottled water.
- Plastic has negative impacts on the environment and is potentially harmful for human health.
- Avoiding plastic bottled water is always environmentally encouraged.
- Out of 6,300 million metric ton of plastic waste generated worldwide only 9% has been recycled.
- Quality of tap water in the UAE has always been a point of debate.
- The UAE ranks as one of the highest rate in bottled water consumption worldwide and one of the largest per capita waste generators.

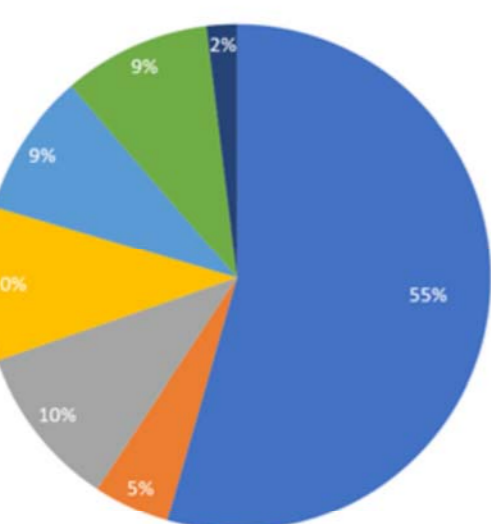
Biodegradable plastic

- Bioplastic is fully biodegradable and offers an alternative option to petroleum-based plastic.
- It can either be made by extracting sugar from plants like corn and sugarcane to convert into polylactic acids (PLAs), or it can be made from polyhydroxyalkanoates (PHAs) engineered from microorganisms.
- Biodegradable is MORE expensive than plastics

Project Goal

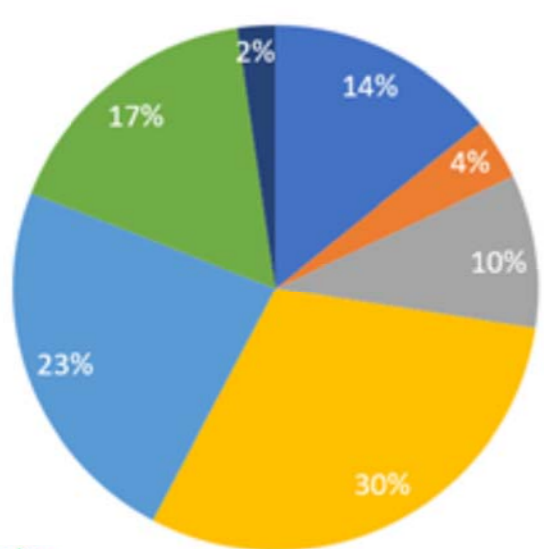
The main goal of this project is to evaluate the use of bioplastics as a practical alternative to petroleum-based plastic in water packaging from consumers' perspectives in the UAE.

Demographics of study participants:



Participants by Emirate

Participants by Age Group



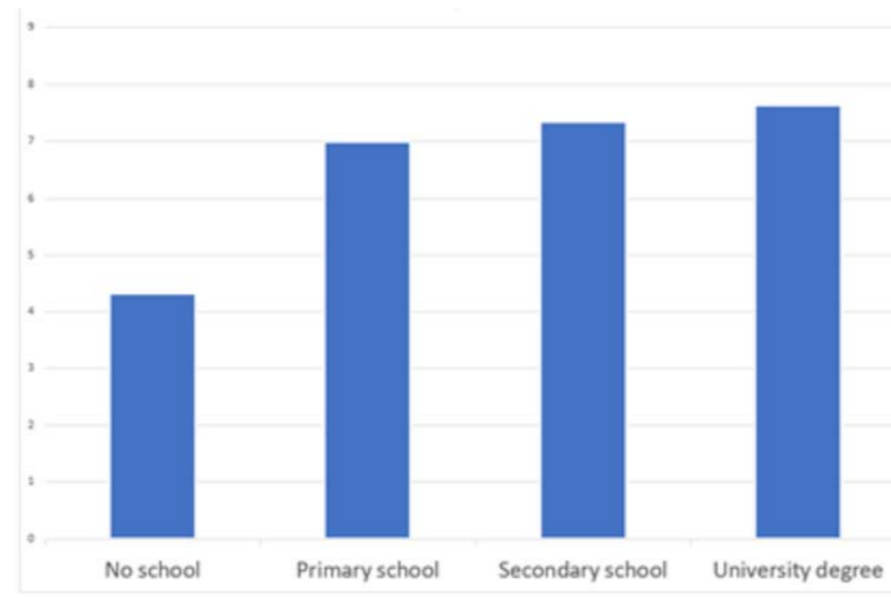
Monthly income of participants in AED



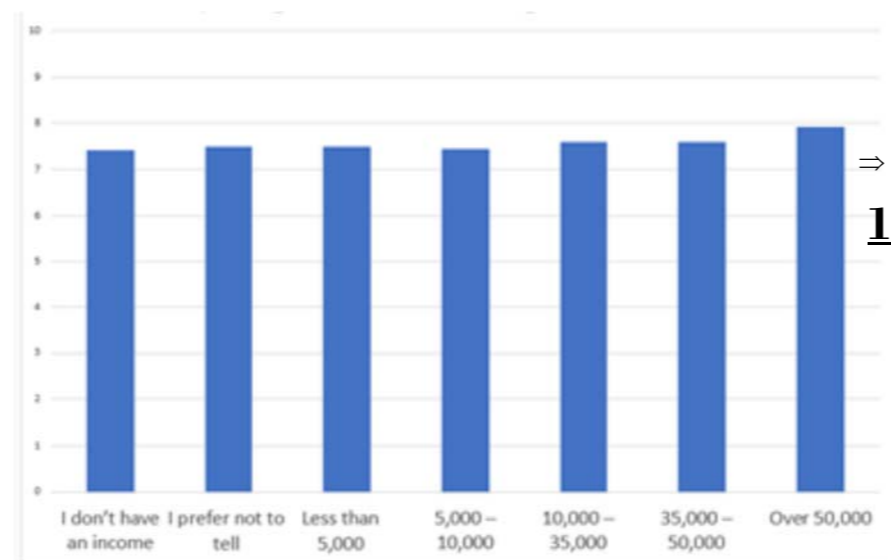
Study Methodology

- The public preference between drinking from tap water and bottled water was assessed in a sample of 2,500 inhabitants.
- Public opinions of tap water's safety varied greatly between participants.
- Although authorities have continuously reaffirmed the superior quality of tap water in the UAE, the survey results showed overwhelming dependence on bottled water for drinking.

Results:



Likelihood to purchase 100% biodegradable bottle among different education groups (out of 10)

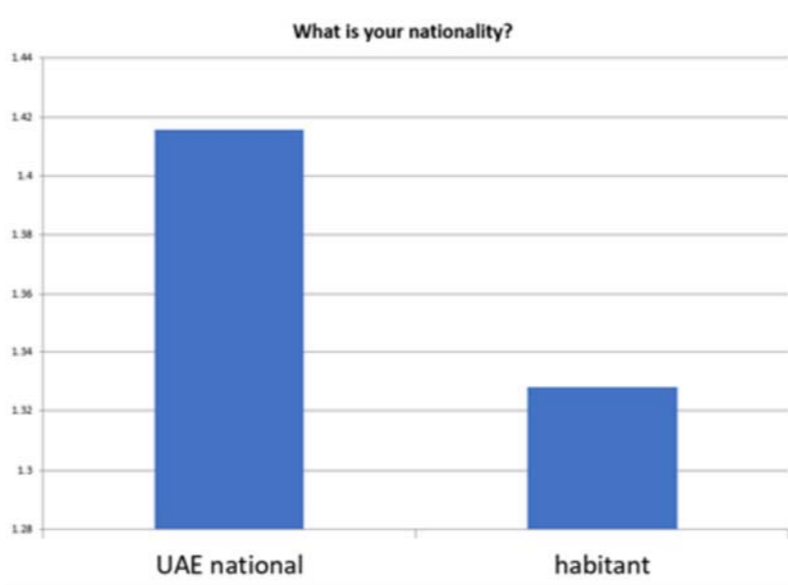


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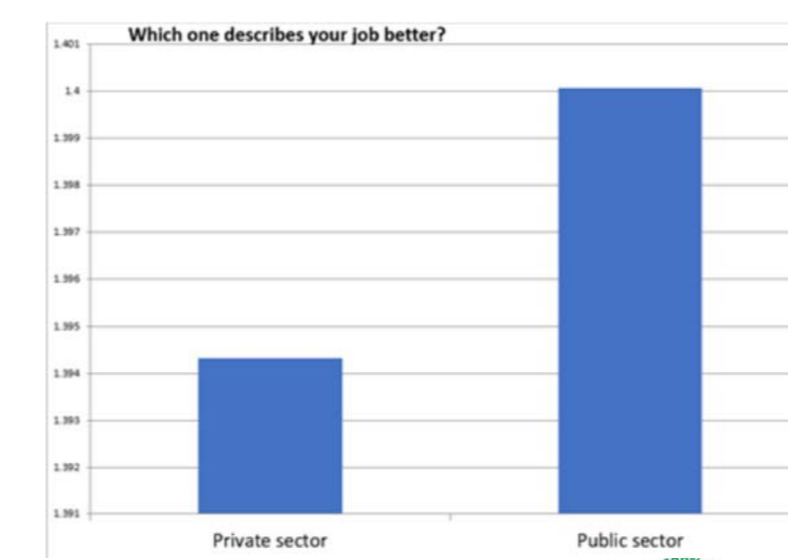
Willingness of participants to pay extra to use biodegradable plastic bottles including their perspective on current price

Discussion:

UAE Nationals are more likely to buy biodegradable plastic bottles than expats



Educated participants regardless of the field of work have sufficient knowledge to care and protect the environment.



Participants who work in the public sector are motivated to pay more to protect the environment than participants who are working in the private sector.

Conclusion

- There is a high chance for UAE residents to buy biodegradable plastic bottles.
- Participants who have higher education levels are more likely to buy biodegradable plastic bottles.
- Based on our statistical analysis, income does not affect the willingness of people to purchase biodegradable water bottles.
- 65% of participants have never drank tap water, 24% rarely drink it, 7% drink it most of the time, and 4% drink it all of the time. While some residents do not drink tap water at all (54%), some of them drink tap water at home (22%), work (4%), restaurants (3%), or while traveling (7%).
- Results have shown no significant difference between expatriates and nationals and between males and females with a p-value equals to 0.0007 and 0.04 respectively.
- Education level didn't show any statistical significance for preference from drinking bottled water vs tap water.
- The university educated responses were averaged between 'Never' and 'Rarely', while participants with primary education and less showed an average between 'Rarely' and 'Most of the time'.

Future Work

- Spread out more Awareness about biodegradable plastic by doing workshops via social media.
- Start producing biodegradable plastic bottles using local materials available in the UAE and surrounding areas
- Communicate with the international and local manufacturers to explore viability of industrial scale production

Acknowledgements:

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