

Is It Real Sustainable For Future? A Critical Case Study of Public Natural Gas Barbecue

Yang Cheng*, Sizhen Liu^a

University of New South Wales, Sydney, Australia, China

*Corresponding author e-mail: 176680566@qq.com, ^aliusizhen19931129@gmail.com

Abstract. Australia has a pleasant climate, and barbecue is a major social event for Australians. During weekends and public holidays, people would invite their friends for outdoor barbecues. In Australia, almost every home has a barbecue grill, and there are numerous public barbecue grills in parks or gardens. As the public become more aware of air pollution and global warming, they start to use gas grills for barbecue, since they believe that using charcoal grills can increase carbon dioxide emission which may lead to global warming. Does that really work? In order to prove that, a critical analysis of special public natural gas grills produced by CHRISTIE will be performed from three perspectives of ecology, economy and politics. Furthermore, based on observations and researches, it will suggest a possible intervention that is unsustainable.

1. Introduction

For Australians, barbecue is regarded as the iconic feature in their lives. Numerous gas grills could be found in public space such as national parks or gardens. Barbecue is more than a cooking style but a celebration institution. Because of the increase of the public awareness related to pollution issues and global warming, the public start to apply gas grills for barbecue since they believe that there will be less air pollution without using charcoal grills. However, is it true? This essay will critically analyse the public natural gas grill of particular produced by CHRISTIE Company in ecological, economic as well as politics vectors. Moreover, based on the observations and researches, it will propose a possible intervention for its unsustainability.

The natural gas grills refer to the grills that use natural gas as their heating supply. Based on the research of CHRISTIE barbecue, the author notices that this kind of barbecue grills is designed to operate and maintain easily. Additionally, CHRISTIE Company shows a high responsibility of protecting the environment. It is generally acknowledged that charcoal grill is worse towards the environment than natural gas grill since there will be less carbon emission and toxic substance through using the natural gas grill, which indicates that the natural gas grill tends to be healthier to people. According to a study in 2009, the carbon footprint of a charcoal grill is nearly three times higher than that of the gas grill.¹ The Company said that CO₂ generation of CHRISTIE gas barbecue was also lower than other brands. It is widely acknowledged that due to the carbon emission, the global especially Australia is facing a great trouble of global warming which leads to the rise of sea level. In the essay written by Josh (2017), the coral in the Great Barrier is under significant risk because of climate change.² the natural gas grill is designed to replace the charcoal barbecue grill and create an



eco-friendlier way for the Aussies to celebrate. Initially, the author thought that natural gas grill was more sustainable than the charcoal grill. However, the fact is opposite. And the author would analyze its sustainability and unsustainability in different ways.

2. Immovability

This kind of gas barbecue is fixed what shows that people are supposed to stand near the grill. Through the observation in the Centennial Park, the author notices that there is no chair around the grill appliance and also no top ceiling over the gas grill. The visitor who operates the grill has to stand closely around the appliance for a long time and deliver the food to the shelter once the food is barbecued. It is known that Aussies always have barbecue parties in their summer time. However, the sun would be extremely hot in summer. Moreover, long-time sun exposure may increase the risk of skin cancer.³ Even with the protection of the sunscreen, Australians are still under the threat of non-melanocytic because of the long-time sun exposure. In addition, when people use the grills, they are more likely to be restricted by the barbecue of its immovability. If the visitors are going to have a barbecue party, they have no choice but to choose a particular location (near the natural gas grill), even this product is designed for decreasing the carbon emission and encouraging Aussie to do outdoor actions. What's more, it is also designed for enhancing the connections between people and nature. However, compared with the movable gas barbecue grills, Aussie are more interested in that kind of gas grills. Great grill design is supposed to provide a sustainable way of barbecuing. There is an increasing trend that Aussie are likely to hold a barbecue party in the courtyard or bring a portable gas grill to the public parks.

Besides, there is no rain shelter for this appliance, thus, when it rains unexpectedly, there is no possibility to barbecue. It could be imagined that people would be extremely struggling with grilling the food in the bad weather and food would be contaminated by the dirty water.

Therefore, considering the behaviour of human barbecuing, public natural gas grill is less sustainable.

3. Heating supply

The source of heating supply in CHRISTIE barbecue is natural gas. In the report of gas market written by Australian Government (2015), the storage of the natural gas in Australia is over 885 TCF which helps the country become the largest exporter in the world.⁴ This seems to indicate the heating supply could be achieved independently instead of importing charcoals from other countries.⁵ Therefore, the cost of delivering heating supply tends to reduce because of the usage of natural gas grill. Moreover, since charcoal is usually made from slow heating of wood in the absence of oxygen, which shows its high energy consumption. Also, cutting woods may result in deforestation.

In my perception, natural gas grill seems to be more sustainable. However, according to OAK RIDGE National Laboratory (2007), using charcoal has a long-term advantage.⁶ Charcoal is made from wood and the wood is a renewable resource. It can be argued that using charcoal grill produces a large amount of visible smoke. However, according to Union of Concerned Scientists, burning natural gas does provide smoke which is invisible. Nowadays, with the help of advanced technology, a new form of the charcoal has been created, which could decrease the bad impacts towards the environment. To some extent, using charcoal is more like a carbon cycle. The carbon dioxide produced by burning charcoal could be adsorbed by the renewable trees. Moreover, natural gas is a non-renewable energy, which cannot be replenished, while it may take millions of years for organic matter to become fossil fuels.

Compared with the charcoal grill, the public natural gas grill is less sustainable.

4. Long-time wasting

In summer time especially on Australian Day, numerous Australians prefer to have a barbecue and celebration in the public areas with their families. Based on the observation, the author notices that there are only 4 gas grills in the public areas, which indicates that there will be only 4 families to have

barbecue simultaneously. Whereas, the fact is that the rest of the families need to wait for quite a long time because barbecue requires a long time to set up everything and eat. The high blood pressure may occur which result in impatience through long-time waiting.⁷ Moreover, since it is a public gas grill, visitors are required to bring everything: food, tools, sauces, tissues and detergent. Thus, visitors need to prepare all of the items, which requires quite a long time. To some extent, it is more likely to carry a small portable kitchen into the public gas grill. Also, this kind of gas grill should be cleaned carefully after the barbecue. Therefore, rather than having the barbecue in the public spaces, Aussies prefer to enjoy the barbecue in their private backyard.

Compared with the domestic gas grill, the public gas grill is less sustainable.

5. Plastic wasting

Aussies love eating meat and sausages are the iconic food in the Australian barbecue. In current supermarkets such as Coles and Woolworths, all the meat is well packaged in the plastic box, which is considered as plastic wasting. Additionally, modern Aussie barbecue contains seafood such as shrimps and fishes. However, Australia is facing a great trouble with plastic pollution. Since the Microplastics could be accumulated through the food, thus, tiny fragments of the found in marine lives, which will damage the human health.⁸ As people need to bring food to the public gas grill, all the food will be carefully packaged and carried by plastic bags.

There is a big issue of using public gas grill. Through the observation of how people eating barbecue, the author notices that visitors seldom bring the home appliances such as ceramic plates, glass cups and metal knives to the public barbecue grills since these things are heavy and may break down easily without caution. Instead, Aussie prefer to use disposable tableware for their barbecue. These plastic items are easy to carry, and they just need to throw the plastic items into recycle bins for the disposal. To be frankly, it would be more effective and convenient for Aussie to use plastic appliances for their barbecue will also contribute to the plastic production company. It is true that Aussie should avoid using the disposable tableware when they have their barbecue in the public area. However, even considering the long-term benefit of sustainability, it is still a wicked problem to use non-disposable tableware because it shows fewer advantages than disposable of plates and cups.

Based on the critical evaluation of these four aspects, there are two possible interventions for a less unsustainable purpose.

6. Changing the heating supply

A more sustainable intervention could be a solar-powered barbecue grill. Solar-powered barbecue grill refers to the grill that collects solar energy as heating supply. Solar energy is a renewable energy. Moreover, there will be less carbon emission through solar-powered grill compared with natural gas. In summer, Australia has the highest solar radiation among the world, which indicates that this kind of product is more possible to be achieved successfully in Australia.⁹ Additionally, the solar-powered grill will not be fixed as there is no need to install the pipes. Considering bringing more movability, the wheels could be added to this product.

However, this design has some limitations. Firstly, since it collects the energy from the sun, it will take more time than heating by natural gas. Secondly, this product has lower efficiency in the bad weather condition compared with natural gas grill. Intervening a sustainable design practice is extremely difficult, and also designing for sustainability requires to take the proliferation of sustainable probabilities into consideration.¹⁰

7. Changing the materials of disposable tableware

Rather than using plastic disposable tableware when Aussie have their barbecue, they should be more aware of the plastic pollution. What if they attempt to use disposable tableware made by other materials such as paper? It is true that paper disposable tableware may be a little bit expensive than the plastic disposable tableware. However, considering a long-term benefit for the environment, it deserves.

8. Conclusion

To sum up, with the observations and researches of this particular natural gas grill, the author realizes that even the public natural gas grill is designed for a purpose that is sustainable. However, through the critical analysis in different vectors, this product seems to generate a larger range of problems unexpectedly. Through the whole course of learning sustainability, the author also understands that sustainability is more related to considering different vectors into an integrated system. For example, public gas grills are considered more environmentally friendly than charcoal gas grills, as using natural gas grills reduces carbon emissions. Whereas, when taking the whole carbon cycle into consideration, charcoal grill is more sustainable.

The author also realizes that sometimes a sustainable design is more than changing the material, it should be more concentrated on changing the human behaviors. Therefore, unsustainability is difficult to deal with since it exists in a large human-scaled system.¹¹ However, good designers explore the real needs of the customers and use empathy to become a part of their clients. The material is easy to change with the development of the advanced technology, whereas, it would be extremely difficult to change human behaviors since changing behaviors means that customers have to get out of their comfort zone to be adaptable with the new thing.

References

- [1] ELSEVIER, "Grilling With Charcoal Less Climate-Friendly Than Grilling With Propane", *Eurekalert!*, 2009 <https://www.eurekalert.org/pub_releases/2009-05/e-gwc051209.php> [Accessed 2 June 2018].
- [2] Josh Wodak, "Artificial Coral Reefs: Climate Change And Human-Nature Hybridity", *Academia.Edu*, 2017 <https://www.academia.edu/25884964/Artificial_Coral_Reefs_Climate_Change_and_Human-Nature_Hybridity> [Accessed 3 June 2018].
- [3] Anne Kricker, Bruce K. Armstrong and Dallas R. English, "Sun Exposure And Non-Melanocytic Skin Cancer", *Cancer Causes & Control*, 5.4 (1994), 367-392 <<https://doi.org/10.1007/bf01804988>>.
- [4] Australian Government Department of Industry, Innovation and Science, "Gas Market Report", *Industry. Gov. Au*, 2015 <<https://industry.gov.au/Office-of-the-Chief-Economist/Publications/Pages/Gas-market-report.aspx>> [Accessed 3 June 2018].
- [5] Jo Isaac, "Bbqs: Gas Vs Charcoal | Green Lifestyle Magazine, The Best Of Green", *Greenlifestylemag.Com.Au*, 2012 <<http://www.greenlifestylemag.com.au/features/3494/bbqs-gas-vs-charcoal>> [Accessed 3 June 2018].
- [6] OAK RIDGE National Laboratory, "Grilling With Charcoal Can Benefit Environment Long-Term | ORNL", *Ornl.Gov*, 2018 <<https://www.ornl.gov/news/grilling-charcoal-can-benefit-environment-long-term>> [Accessed 3 June 2018].
- [7] Edward Twitchell Hall, *The Silent Language* (New York: Anchor Books, 1990), pp. 4-12.
- [8] Julia Reisser and others, "Marine Plastic Pollution In Waters Around Australia: Characteristics, Concentrations, And Pathways", *Plos ONE*, 8.11 (2013), 80466 <<https://doi.org/10.1371/journal.pone.0080466>>.
- [9] Alireza Bahadori and Chikezie Nwaoha, "A Review On Solar Energy Utilisation In Australia", *Renewable And Sustainable Energy Reviews*, 18 (2013), 1-5 <<https://doi.org/10.1016/j.rser.2012.10.003>>.
- [10] Cameron Tonkinwise, "Practicing Sustainability By Design: Global Warming Politics In A Post-Awareness World", 2007 <<https://moodle.telt.unsw.edu.au/mod/folder/view.php?id=1545414>> [Accessed 3 June 2018].
- [11] Cameron Tonkinwise, "Radical Sustainable Innovation", 2013 <<https://moodle.telt.unsw.edu.au/mod/folder/view.php?id=1545414>> [Accessed 1 June 2018].