

Brief: The Soba Problem

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The Problem

Many houses in Türkiye still uses coal stoves called Soba which have safety issues and it is difficult to ignite.

The Objective

An easily operated, safe heating solution that is fueled by coal and/or wood

Persona

- **Name:** Kadir
- **Age:** 60
- **Occupation:** Retired Truck Driver
- **Location:** Trabzon, Turkey
- **Education:** Middle School Dropout

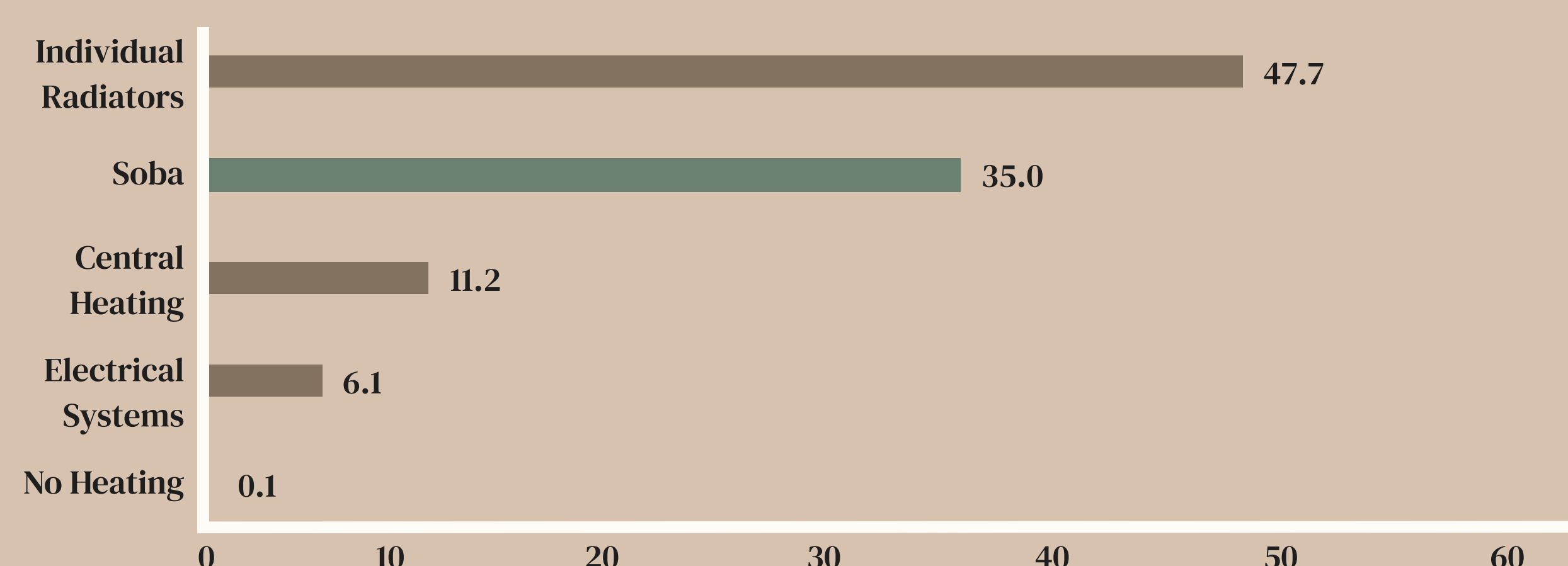


Bio: Lives in the countryside with his wife and is often visited by his children and their families Uses Soba in his living room to keep warm because it's the cheapest option.

Habits: Uses the cheapest coal he can buy, and sometimes wood and paper scraps, as fuel. Usually uses paper for ignition but sometimes gets impatient and adds gasoline into the fuel even though doing so is highly dangerous. Cleans his Soba and chimney twice a year, before and at the end of summer. Always has a pot of tea brewing on the Soba.

Frustrations: The surface of the Soba is very hot and burnt his grandchildren's hands on several occasions, he himself almost got burnt once because he thought the Soba'd cooled down and tried to touch it. The soot from the Soba darkens the walls so much that he repaints them every three years. The ashtray of the Soba can't contain the ashes and they spill everywhere. Is scared of CO poisoning.

The Statistics



Percentages of Heating Systems Used in Turkish Homes

Overall View

In 2023, most homes in Türkiye changed their heating to natural gas. However, **33% of the houses across the country still use coal/wood stoves called Soba to warm up, cook, and gather as a community.** It is also a historic cultural element for the elders living at countrysides and their families. **There are approximately 18 million houses still using Soba.**

Unfortunately, Soba are not entirely safe or practical. According to studies, in five years, approximately **109 thousand people have suffered carbonmonoxide poisoning, and many have lost their lives to it.** Moreover, soot and ash emanating from Soba **pollute both the environment and inside people's homes.**

We need an immediate innovative solution for the families who are not likely to change their heating systems because of their socioeconomical state or inability to access natural gas. **How can we prevent CO leaks, explosions and poisonings, or in cases of occurance, how can we alert authorities to save the people amidst? How can we make Soba maintenance more practical?**



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What is Soba?

- A heater made of cast iron
- Has a hollow interior in which fuel (coal, wood, paper, etc.) is put, with an ashtray on the bottom for easy cleaning
- The fire can be accessed from the lid on the top of the Soba to poke and reignite it
- Every exterior surface is burning hot, and the the top is utilized well (as seen in the picture on the 1st page)
- Sometimes has compartments that act as ovens
- Usually set up in the living room and is stationary once set up
- Ventilated only by a single pipe which connects to the chimney through a hole in the wall
- Is adviced to be cleaned every two months



outside



inside

Cultural Insight

Soba have an important place in many Turkish people's hearts as both a cozy and efficient heater that keeps people warm during long winters, and as a hard to maintain necessity for the less fortunate. It is usually the only, or the best, heater someone has in their home, so the room it's placed in becomes a gathering hub for the family. It's also used in hotels or cafés to achieve a homey, warm feeling.

The children are sometimes taught not to touch it so they don't get burned by having their hand lightly pressed against the hot surface by an adult. It's a fun and relaxing cultural activity to cook chestnuts and potatoes, and brew tea on Soba, as well as putting fruit shells on it to enjoy aromatic smells.



Soba in the living room of an urban house



Soba in a countryside house



Tea brewing on Soba



Chestnuts on a classic Soba



Orange shells on a Soba

Dangers and Hardships

- Lethal in cases of CO gas leaks
- Causes severe burns when touched, can burn or melt objects if they're close to it, flammable materials must never be placed near Soba
- Tedious to clean, is hardly ever cleaned as frequently as adviced
- Takes a long time to ignite, should not be ignited with flammable liquids as the consequences can be... explosive
- The fire needs to be kept alive by poking and prodding, or
- Emits tons of polluting soot and ash
- Is heavy and hard to set up, and can't be moved around

Extras

- [Video of a Kuzine Soba](#)
- [Soba ignition and parts of a soba](#)
- [Video of a different type of Kuzine Soba](#)
- [Cooking on a Kuzine Soba](#)

Feel free to reach out to us for translations and explanations

Good luck :)

-Team 10: out of ten