Boujemaa Kouti still remembers the screams of his neighbors trapped under the rubble of their houses, calling for help that horrific night 63 years ago.

He was just 8 and asleep when a large earthquake struck Morocco in 1960, wiping out entire neighborhoods in the coastal city of Agadir, near the Atlas Mountains, and killing at least 12,000 people.

"I saw stars when I woke up," Mr. Kouti said, and then he heard "people screaming 'Save me' — calling for their family."

Mr. Kouti's older brother died, and the Kouti family lived in tents for almost a year as Agadir was mostly rebuilt at a location nearby deemed safer.

Rubble was bulldozed and cleared, and vast amounts of concrete were poured as buildings with stricter seismic standards went up.

The Agadir Oufella, a 16th-century fortress partly damaged in the quake, was eventually restored, and a memorial was erected on top of a hill where many died.

Now, Moroccans are confronting a new challenge in the nearby Atlas Mountains: how to rebuild the once picturesque villages and towns destroyed in the powerful earthquake that devastated the region on Sept. 8, killing about 3,000 people.