After a largely peaceful and calm poll, Kenyans are waiting anxiously for the results of the country's presidential election in which turnout was said to be low pointing to growing frustration with the political elite.

Preliminary results broadcast by Kenyan television suggest a tight race for the presidency between Deputy President William Ruto and five-time veteran opposition leader Raila Odinga, now backed by the ruling party.

Both men have vowed to maintain calm following Tuesday's poll, but the memory of past election-related violence remains fresh for many Kenyans, who have urged political parties to accept the results.

With pressure building on the Independent Electoral and Boundaries Commission (IEBC), which has to declare the results by August 16, officials worked overnight to count votes and dispel rigging fears, as observers watched.

By 10:00 am (0700 GMT) on Wednesday, the national tallying centre had received nearly 95 percent of the presidential results forms transmitted from thousands of polling stations.

"We call for patience among Kenyans as we undertake this rigorous exercise and also endeavor to complete this exercise as soon as possible," IEBC chairman Wafula Chebukati said in a late-night briefing.

Kenyans, some of whom lined up before dawn to cast their ballot, voted in six elections on Tuesday, choosing a new president as well as senators, governors, lawmakers, woman representatives, and some 1,500 county officials.

Despite the early show of enthusiasm, however, turnout was markedly lower than in previous years, suggesting that for some Kenyans at least, patience with years of unfulfilled promises was running out.

According to latest IECB figures, turnout at 4:00 pm Tuesday, 10 hours after polling began, was just over 56 percent of the 22 million registered voters.

That compares with a final turnout in the disputed August 2017 election of 78 percent.