



THE STUDY
By Manikant Singh



Trinity Nuclear Test

Why in the news ?

- ❖ 75 years ago, on July 16th, scientists conducted the test of the world's first atomic bomb, known as the 'Trinity Test.'
- ❖ After a few weeks of this test, the Japanese city of Nagasaki was hit by an atomic bomb named 'Fat Man,' resulting in the death of thousands of people.

Super Bomb

- ❖ The super bomb, nicknamed 'Gadget,' was created by a team of scientists at a top-secret location in Los Alamos, New Mexico.
- ❖ On July 16, 1945, the world's first super bomb, containing approximately 13 pounds of plutonium, exploded in a desert in New Mexico, causing everything around it to be destroyed, and the vast pieces of sand melted into greenish glass.
- ❖ It was developed as part of the Manhattan Project led by the United States, which aimed to develop nuclear weapons to give an advantage to the allied forces during World War II against Germany, Japan, and Italy.



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What was the Manhattan project?

- ❖ One month after Germany's invasion of Poland and the start of World War II, Nobel Prize-winning physicist Albert Einstein wrote a letter to the American President Franklin D. Roosevelt, warning him about the potential dangers of the nuclear weapons being developed by Adolf Hitler.
- ❖ Soon after, the United States initiated a secret nuclear research program with the codename "Manhattan Project," aiming to develop a nuclear weapon to end the war on its terms. The project brought together prominent nuclear specialists from the United States, Canada, and some expatriate scientists from Germany and other Nazi-occupied countries.
- ❖ The official commencement of the project came after President Roosevelt's declaration that America would enter the Second World War following the bombing of Pearl Harbor by the Japanese Navy in 1941.
- ❖ Colonel Leslie R. Groves was appointed to lead the project. Facilities were established in remote locations across the United States and Canada by December 1942.
- ❖ The actual design and conceptualization of the super bomb, known as "Gadget," were done by a team of scientists in a top-secret laboratory in Los Alamos, New Mexico.
- ❖ J. Robert Oppenheimer began to be known as the "father of the atomic bomb."
- ❖ The Los Alamos team developed two types of bombs – one was uranium-based, later named "Little Boy," which was eventually dropped on Hiroshima. The second was plutonium-based.
- ❖ Testing of "Little Boy" was not possible due to insufficient uranium availability. The plutonium bomb was finally tested at the Trinity site on 16 July 1945.



What would have been the results of the Trinity test?

- ❖ Residents of New Mexico were not given a clear warning before the test, ensuring that it was conducted secretly.
- ❖ According to a study published by the Centers for Disease Control and Prevention (CDC), there was a sudden increase in the infant mortality rate in the months following the explosion. Many residents also complained that the number of cancer patients increased after the Trinity test.
- ❖ There is concern about the spread of dust from the explosion site, approximately 100 miles away, posing a serious risk to the residents of the region. Several families complained that their animals' skin was burned, blood was oozing, and hair was falling out.
- ❖ More data is available on the damage caused by nuclear bombs in Japan. It is believed that over 200,000 people were killed in the explosions in Hiroshima and Nagasaki, many of whom died due to radiation exposure in the weeks following the blasts.
- ❖ On August 6, 1945, the uranium bomb in Hiroshima destroyed nearly 70% of the buildings and resulted in the death of approximately 140,000 people by the end of 1945.
- ❖ According to figures from the International Campaign to Abolish Nuclear Weapons (ICANW), the explosion of the plutonium bomb in Nagasaki three days later resulted in the death of 74,000 people that year.
- ❖ After witnessing the destruction in the two Japanese cities, Oppenheimer publicly acknowledged regret for developing such bombs that could be the cause of complete devastation.

