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The Fukushima Daiichi Nuclear Disaster

Engineering Guide and Ethics



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What is Nuclear Power Plant?

- Nuclear power plants generate one or more nuclear reactors by using radioactive materials.





FUKUSHIMA NUCLEAR POWER PLANT

- Fukushima Daiichi is among the world's largest power plants.





CAUSES OF ACCIDENT

- The 2011 Tōhoku earthquake and tsunami was an 9.0-magnitude earthquake followed by tsunami waves.





Accident of Nuclear Power Plant

- The tsunami has led to shut down three active reactors on 11.03.2011.

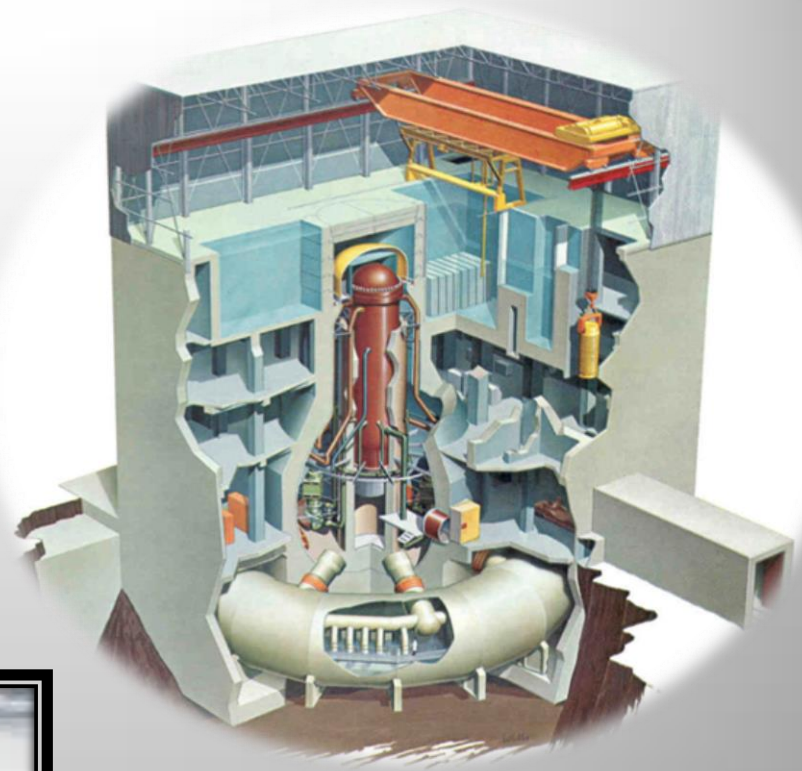


- On 12.03.2011 , Hydrogen explosion was happened in Unit 1.



13.11.2011

- Dropping of the internal pressure has led to explosion in Unit 3.



14-15.11.2011

- There was an explosion in Unit 4 fuel storage, after that the fire has started



16.03.2011

In Unit 1-3, a %50 portion of the core was under threatened from melting.



17.03.2011

- Helicopters transported water for cooling Unit 4



18-19.03.2011

- Cooling unit 3 with water canons provided by police and fire department units, Unit 3 is considered cooling enough.

20-21.03.2011

- At around 15.55 light gray smoke is observed from the south part of the 5th floor of Unit 3.





22.03.2011

- White smoke seen in Unit 2, until the morning of 22.03 it disappears.

23.03.2011

- End of water feed of the spent fuel storage pool of Unit 4 .



Consequences of the Accident

❖ Effects on alive

Because of released substances, many health problems have occurred.





❖ Effects on Social Life

Homes which are located 30 km around of Fukushima have been evacuated.

❖ Effects on Economy

At the end of the accident, financial losses reached approximately 150 billion Euro.



❖ Effects on Environment

After the disaster, released substance damaged the environment.

These photos were taken from the same spot.

(Before the disaster)



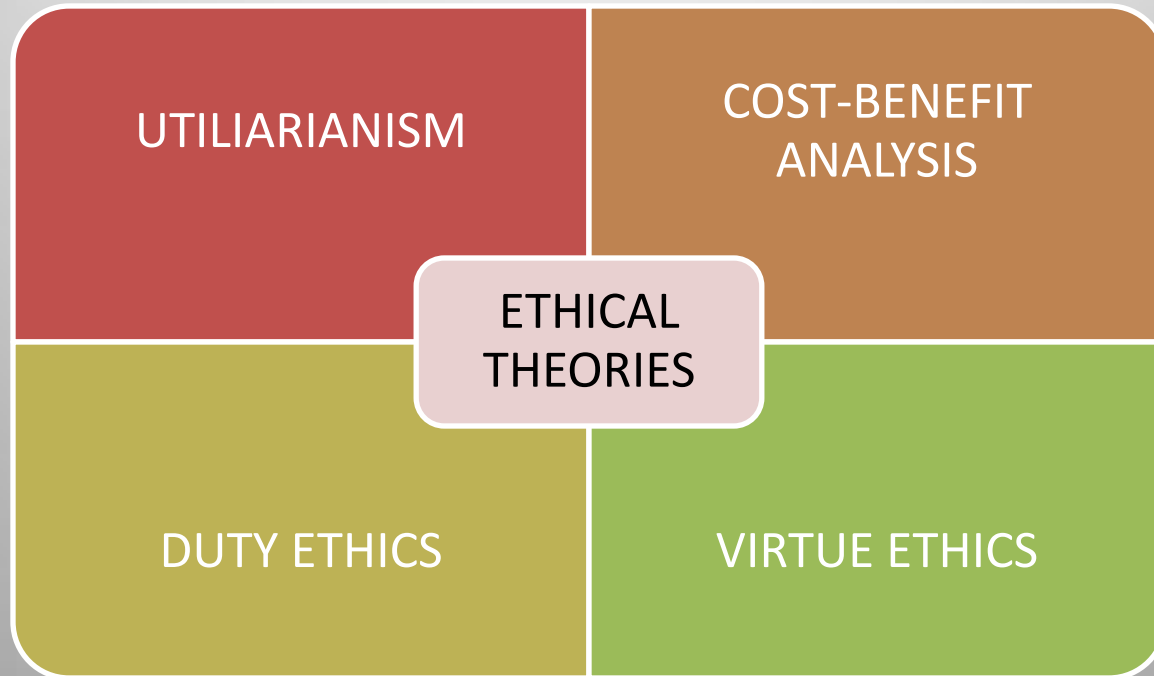
(After the disaster)



The vast pine forest was washed away in the tsunami.



Ethical Assessment



Analysis of Issues in Fukushima Nuclear Disaster



1. After the natural disaster, rate of pollution increases because of nuclear waste
2. Even if an accident has happened, harms of leakage are kept in low levels
3. Authorities cannot stop the spread of leakage, deadly illnesses is occurred.
4. As a result of the accident, a lot of disease occur, but it does not create permanent damage on living things.
5. Authorities take action immediately, after the release of leakage for preventing the increase of pollution.



In our event, authorities did not take precaution, they did not act rapidly. The accident did not create any permanent damage on human. Researchers found mutated animals. Pollution in environment increased.



THANKS FOR ATTENTION