In order to mitigate a nuclear meltdown from ever happening nuclear power plants, including the one at Chernobyl, Russian engineers had designed the reactor systems properly on the drawing board and implemented them correctly during construction and maintenance. The plant also maintained proper procedures and controls for normal operations and emergencies and had competent and trained plant management and operating staff. They also ensured the availability of backup safety systems to deal with potential nuclear accidents.

At town’s and cities that are near nuclear power plants there are often drills or the citizens are educated with what to do in case a nuclear melt down or disaster occurs. Also, indoor sheltering was provided for nearby townspeople to protect them from the extreme amounts of radiation that they would be exposed to if a nuclear meltdown were to happen.
Emergency crews responding to the accident used helicopters to pour sand and boron on the reactor debris. The sand was dropped to stop the fire and additional releases of radioactive material and the boron was used to prevent additional nuclear reactions. The use of this aerial equipment allowed the Soviet government to fight against the meltdown and the spread of nuclear waste. After the accident, officials closed off the area within 30 kilometers of the plant, except for persons with official business at the plant and those people evaluating and dealing with the consequences of the accident and operating the undamaged reactors. The Soviet government evacuated about 115,000 people from the most heavily contaminated areas in 1986, and another 220,000 people in subsequent years.

Recovery:

A few weeks after the accident, the crews completely covered the damaged unit in a temporary concrete structure, called the "sarcophagus," to limit further release of radioactive material. Although this is not an example of a post disaster shelter system for humans, it is a post disaster system that served to keep the radiation in rather than stopping it from reaching humans as it spread The Soviet government also cut down and buried about a square mile of pine forest near the plant to reduce radioactive contamination at and near the site. Chernobyl's three other reactors were subsequently restarted but all eventually shut down for good, with the last reactor closing in 1999. The Soviet Union got the help of the World Health Organization and the International Atomic Energy Agency to assist in whatever cleanup they could. They
created the International Chernobyl Project, which oversaw a visit to the affected areas and made a comprehensive report on radiological consequences and protective measures.

Process Diagram:

Natural Disaster - Hurricane Katrina

Mitigation:

There were a great number of challenges that the federal government faced when dealing with Hurricane Katrina in terms of mitigation efforts. There were rescue forces and evacuation plans being put into implementation as a measure of precaution for the hurricane. As soon as
the hurricane struck/noted a widespread evacuation began in the nearby cities one of which was New Orleans. A task force called JTF-Katrina(Joint Task Force) was specially created for this particular emergency in order to improve the military support and organize the rescue mission in a way that would be most efficient.

**Preparedness:**

The United States Coast Guard began pre-positioning resources in a ring around the expected impact zone and activated various reservists. President of the United States George W. Bush declared a state of emergency in selected regions of Louisiana, Alabama and Mississippi on August 27. Voluntary and mandatory evacuations were issued for large areas of southeast Louisiana as well as coastal Mississippi and Alabama. About 1.2 million residents of the Gulf Coast were covered under a voluntary or mandatory evacuation order.

**Response:**

The Federal Government sent a great deal of supplies and resources when it became clear that FEMA could not properly handle the number of survivors needing medical support. Hurricane Katrina destroyed most methods of traditional communication; FEMA sent multiple Mobile Emergency Response Support (MERS) detachments to the Gulf Coast region in order to try and re-establish communications. This proved relatively effective. While the military and the Department of Defense played a big role in responding to Hurricane Katrina, the lack of cohesion between the DoD and the nation's various other response plans made it difficult for both of them to be as effective as possible.

**Recovery:**
The U.S. Army Corps of Engineers created the Interagency Performance Evaluation Task Force (IPET) in an effort to properly address the issues that were present during the clean-up of Hurricane Katrina and the New Orleans hurricane protection system, as well as identifying the risks posed to New Orleans should another hurricane hit the region.

Concept Map:

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