Nuclear Meltdowns and Policy:
Analysis of the Impacts of Severe Nuclear Accidents on Nuclear Energy Policy

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Abstract

Since the 1950s, nuclear energy has provided countries around the world with low-carbon power to help address their electricity needs. However, severe nuclear meltdowns have occurred throughout the world and three major nuclear accidents have changed nuclear energy policy indefinitely. Examining three cases in which a severe nuclear meltdown occurred, the data from the accident and policy statements confirm that countries with nuclear energy programs continue to pursue using nuclear as an energy source despite the consequences of the accidents. The broader implications of continuing nuclear energy in countries that have experienced nuclear meltdowns is that the waste from the accidents, security concerns, and the looming threat of another accident may strain relations with other countries in their respective regions.

Methods

- Case Study Method – Three Case Studies
  - **Chernobyl (Ukraine) – April 26, 1986**
  - **Three Mile Island (United States) – March 28th, 1979**
  - **Fukushima (Japan) – March 11th, 2011**
- Analysis of national nuclear energy policy plans in each country
- Analysis of the history of each of the nuclear energy programs
- Comparing policy statements between all three countries
- Examination of publications and documents during and after the accidents

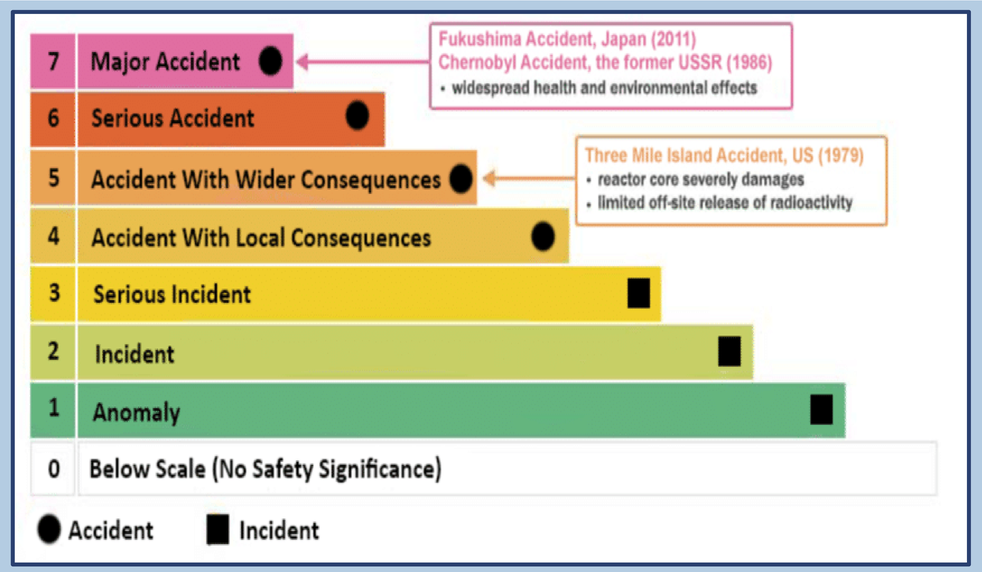

Figure 1: The International Nuclear and Radiological Event Scale (INES) [4]

Policy Analysis

- **Ukraine**: From the current time period up to 2030, Ukraine will provide 227 billion dollars for the implementation of the fuel and energy sector development strategic goals until 2030, including 49 billion dollars for nuclear energy and the nuclear industry[1]
- **United States**: The Strategic Vision[2] of the Office of Nuclear Energy identifies five goals to address the current challenges in the nuclear energy sector:
  - Continue the policy of systematic operation of existing nuclear reactors
  - Enable deployment of advanced nuclear reactors
  - Develop advanced nuclear fuel cycles
  - United States maintains leadership in nuclear energy technology
  - High performance organization by investing as well as communicating with stakeholders
- **Japan**: The Strategic Plan[3] released by the Ministry of Economy, Trade and Industry:
  - Promote measures to support areas with nuclear power plants, which includes the creation of new industries as well as jobs while acknowledging the operational status of nuclear power plants.

Figure 2: Location of the Three Nuclear Power Plant Accidents

Conclusion

States are much more inclined to posit themselves towards a **policy of persistence** in the long term and still utilize nuclear energy, despite serious nuclear accidents due to economic and certain environmental factors. In the wake of an accident, there is high opposition towards nuclear energy and the government tries to alleviate concerns by decommissioning plants and halting the progress of nuclear energy technology. However, the governments persist on utilizing nuclear energy due to keeping its international commitments to nuclear technology, maintaining its place in each society's economy, as well as addressing energy needs that the nation has.

References

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