

Session 3: Spent Nuclear Fuel Issues in Korea

Ryan Costello

The Connect U.S. Fund

Summary

The Republic of Korea is highly interested in nuclear power because it has been critical to Korea's successful economic development by providing inexpensive clean energy. Wind and solar energy have not yet been as effective at producing large amounts of clean energy. Therefore, nuclear power has been perceived as the best energy option for Korea, even though it is far from perfect.

The major problem confronting nuclear power in Korea is that there is no clear way to deal with spent nuclear fuel. Korea wants a completely secure clean energy source. Reprocessing of spent nuclear fuel into plutonium has been considered as an alternative to direct disposal. There needs to be a clear, open dialogue between nuclear experts, the Korean public, and the international community on this important issue. Dialogue is the best option for overcoming the challenges that spent fuel presents, including the potential proliferation of nuclear weapons.

Korea's consideration of reprocessing spent fuel into plutonium is particularly important because Korea depends heavily on nuclear power and seeks to export civil nuclear power production to aspiring states. Thus, Korea sets an example for the rest of the world, including countries that will pursue nuclear power in highly unstable regions. Korea must make certain that its export of civilian nuclear power enables the safe disposal of spent fuel and does not contribute to the proliferation of nuclear weapons. Direct disposal of spent fuel in cooling pools and dry casks is an option, but dry casks need to be taken care of and do not last forever. Therefore, it might make sense for Korea to conduct research and development on reprocessing into plutonium.

Korea's spent fuel policy presents a challenge that needs to be addressed by the whole international community. For a long time, many have been calling for a multinational approach to deal with international spent fuel issues. The more countries that are involved in monitoring spent fuel, the less likely it is that it will be diverted for weaponization purposes. Korea is concerned regarding its increasing accumulation of spent nuclear fuel, but the United States opposes the pursuit of reprocessing due to concerns regarding the proliferation of nuclear weapons based on a plutonium design. Multinational monitoring could lessen America's concerns.

Korea has several options. The first is an interim storage facility overseas, potentially in Mongolia. This has not yet occurred. Another option is sending the spent fuel to a country that already conducts reprocessing, like France, although this is not a cost effective process. A third option is sending the spent fuel to a country that could conduct advanced reprocessing, such as Russia. The final option, which may be the best, is to pursue a multinational facility in Korea to serve as an interim storage site. This could lessen domestic and American concerns regarding spent fuel storage, although the devil is the details. There are numerous questions to be answered regarding security and international oversight.

Moving forward, it appears that the United States and Korea are not yet on the same page on how to safely contain spent fuel. Korea is interested in researching and potentially pursuing reprocessing into plutonium. The United States opposes this option out of concerns regarding the proliferation of nuclear weapons, particularly because Korea sets an example for many nations. This includes countries in volatile regions such as the Middle East. However, further research and development on how to dispose of spent nuclear fuel is necessary, even if reprocessing turns out not to be a worthwhile pursuit.

* The views expressed herein do not necessarily reflect the views of the Asan Institute for Policy Studies.

* The views expressed here are panel overviews of the Asan Plenum. They do not necessarily reflect the views of the author or the institutions they are affiliated with.