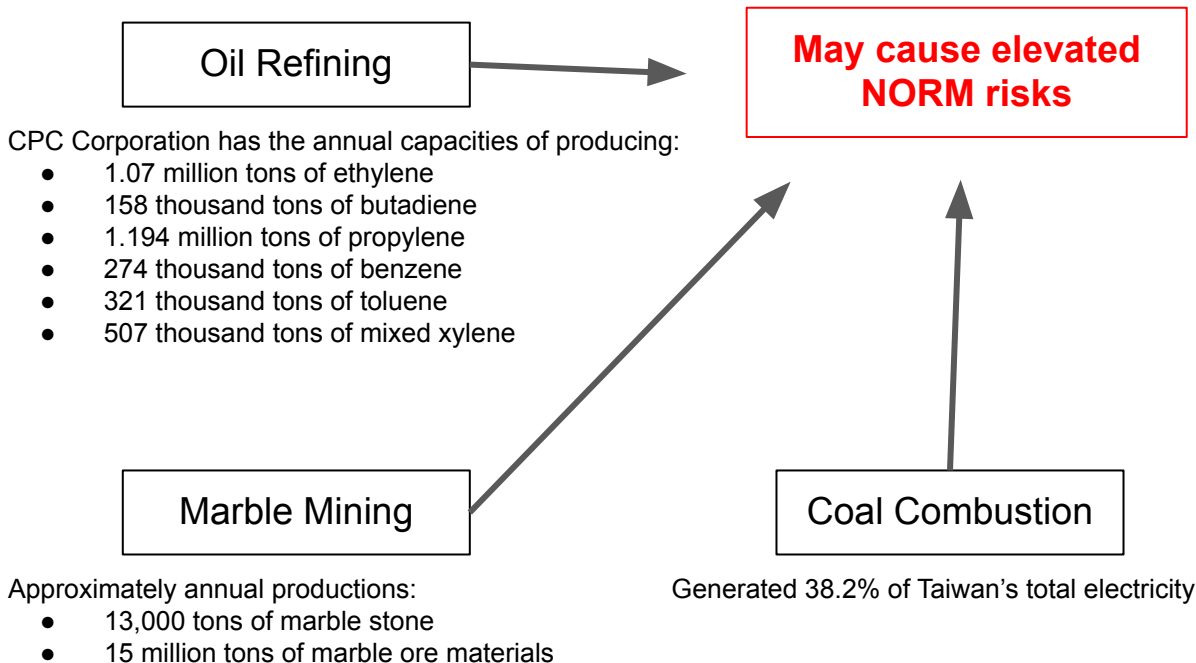


Motivation: Naturally Occurring Radioactive Materials (NORM) in Taiwan



Research Method

Conduct a literature review based on the NORM Database made by National Institutes for Quantum and Radiological Science and Technology (QST)

QST National Institutes for Quantum and Radiological Science and Technology NORM Database

Doc Calculation About NORM Regulations in Japan In-depth Data Glossary Information for researchers

Data of Radioactivity Concentration

- Natural resources (ore, rocks, and fossil fuel)
[List of individual data](#)
- Products generated from natural resources (industry products, and waste)
[List of individual data](#)
- General consumer products to which radionuclides are intentionally added (general products, and health products)
[List of individual data](#)

Data of Import Volume

- Natural resources (ore, rocks, and fossil fuel)
[Japan's import volume \(by countries of origin\)](#)
- Products generated from natural resources (industry products, and waste)
[Japan's import volume \(by countries of origin\)](#)

Data on Actual Measurement in NORM Facility

- Natural resources (ore, rocks, and fossil fuel)
[Facilities processing zirconium ore](#)

Research goal: Make policy recommendations to reduce occupational NORM risks in Taiwan

Steps to formulate policy recommendations

Industries of concern

(1) Coal Combustion

(2) Oil Refining

(3) Marble Mining

Step 1

Compare Taiwan's dose rates with other world regions

Taiwan is lower than 75% of other world regions.

Taiwan's data could not be found. However, dose rates of slope tanks, crude oil tanks, and sludge / oil separation labs might exceed twice as high as any other sectors, as shown by other world regions' data.

Taiwan's marble mining sites are close to gneiss formations, but the dose rate data could not be found. Surprisingly, dose rates of gneiss formation might be 17 times as high as marble formation (data shown in other world regions).

Step 2

Examine Taiwan's current regulations

- Taiwan's Ionizing Radiation Protection Act (IRP Act) is based on the older international standards (The ICRP Publication 60).
- Taiwan's current amendment proposal discussions on the IRP Act have not addressed the oil refining and marble mining industries' issues.

Policy recommendations:
The IRP Act's Paragraph 7.2 should require oil refining companies to measure slope tanks, crude oil tanks, and sludge / oil separation labs' dose rates, as well as requiring marble mining companies to monitor gneiss' dose rates.

Temporary results:

Coal combustion is safe, but oil refining and marble mining should be addressed.