

# SIL Application and Regulation Situation in South Korea

JinHyung Park

Yokogawa Electric Korea

TUV Rheinland FS Expert (TUV Rheinland, #158/10, SIS)

Outside Professor of Korea OSHA

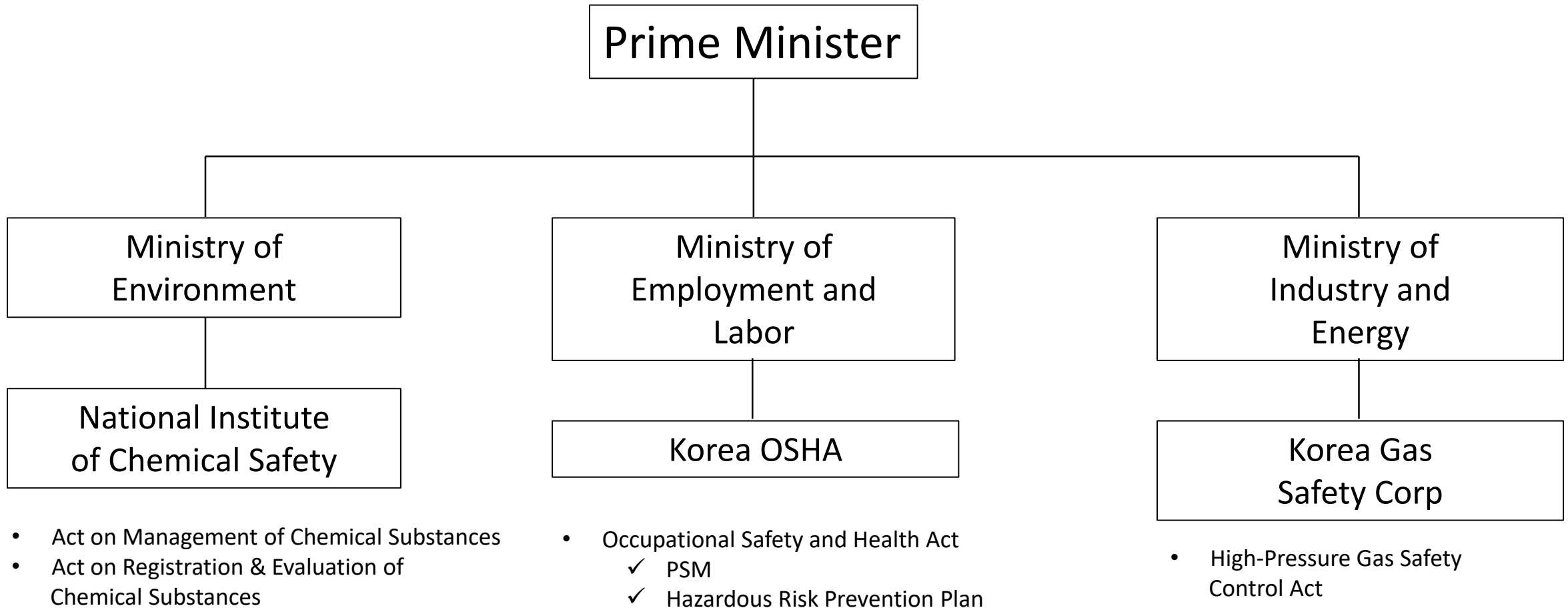


**Safety Case  
Symposium 2019**  
Singapore  
Mar 26 - 27, 2019

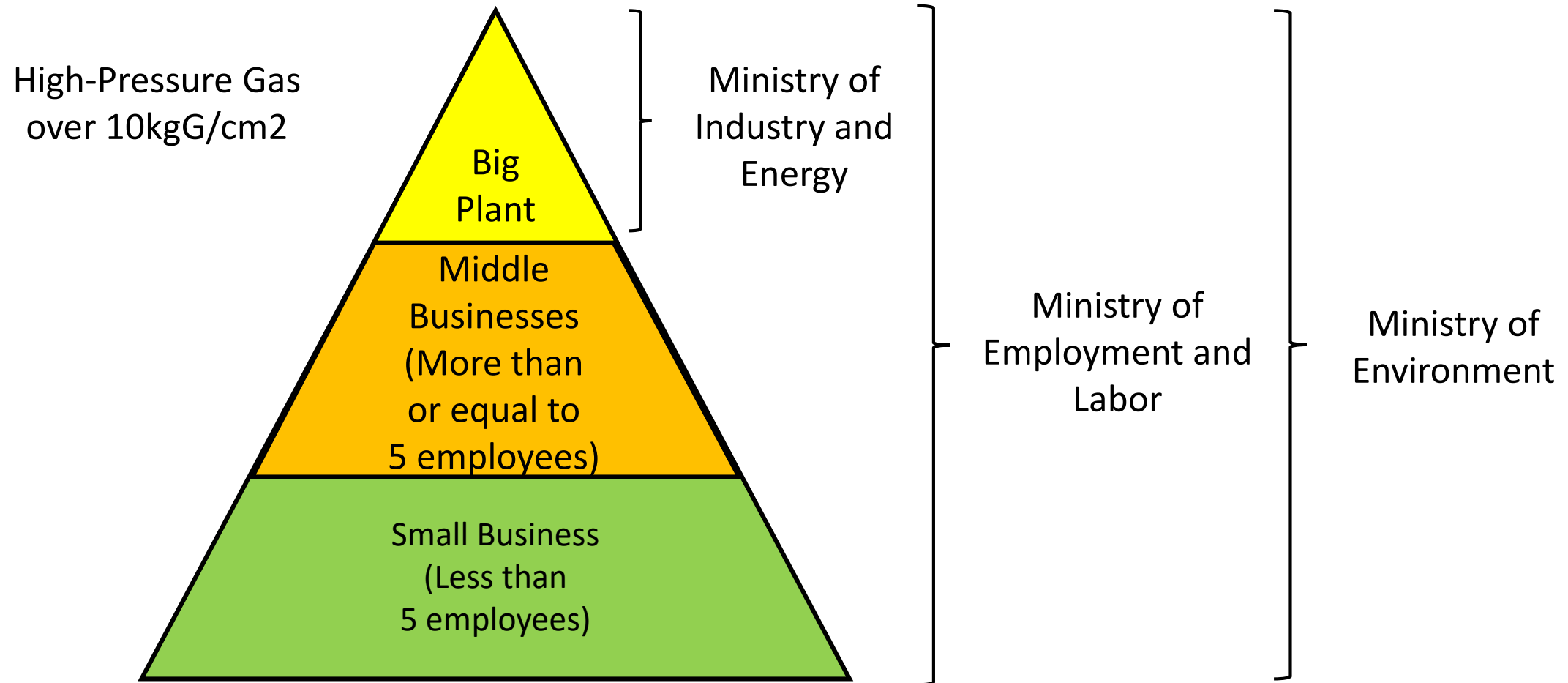


# South Korea Government Organization in relation with Safety

# South Korea Government Organization in relation with Safety



# South Korea Government Regulator Scope



# Historical 2 Major Incidents in South Korea

# 2012 Gumi HF Dispersion



# 2012 Gumi HF Dispersion

---

- 5 fatalities, 11,000 treated or examined in hospital
- Before this incident, Korea OSHA inspection scope was the middle businesses more than or equal to 5 employees. After this incident, Korea OSHA inspection scope is extended to the small businesses less than 5 employees.
- The organization in ministry of environment is enforced. One more regulator, National Institute of Chemical Safety, was founded.
- Two more laws was enacted.
  - Act on Management of Chemical Substances (in relation with CA, QRA)
  - Act on Registration & Evaluation of Chemical Substances
- Simplified LOPA report become mandatory by the act on management of chemical substances from 2014.

# 2013 HDPE Silo Explosion



# 2013 HDPE Silo Explosion

---

- 6 fatalities, 11 injuries
- The HDPE silo exploded during welding work for additional manhole of silo.
- The cause of explosion looks like the remaining flammable dust inside silo, but the regulation to prevent dust explosion was not clear in Korea.
- Before this incident, the plant employees were not punished if there is no clear breach of regulation in relation with the direct cause of incident . But after this incident, Korea OSHA found more than 1,000 breaches of regulation without any relation with the direct cause of this incident. Finally the plant was sentenced to one month business suspension and 0.8 million \$ penalty.
- After this incident, most of refinery plants in Korea adopt LOPA voluntarily.

# Continuous Regulation Enforcement in South Korea

---

- Formular LOPA report is included in PSM document by Korea OSHA government notice in 2016, but it is still not compulsory. Anyway voluntary LOPA adoption is expanded among big plants in South Korea.
- The comments based on all of international standards including IEC61508 and IEC61511 are possible during PSM inspection by Korea OSHA by Korea OSHA government notice in 2016.

# Thank you for your listening.

JinHyung Park

Yokogawa Electric Korea

e-mail: [jinhyung.park@kr.yokogawa.com](mailto:jinhyung.park@kr.yokogawa.com)



**Safety Case  
Symposium 2019**  
Singapore

Mar 26 - 27, 2019

[www.SafetyCaseSymposium.com](http://www.SafetyCaseSymposium.com)