

Radiation Exposure of Workers in Korea

SH Lee¹, GS Seo¹, WC Choi¹, MS Choi², KP Kim²

1 Korea Institute of Nuclear Safety, 2 Kyung Hee University



Background

❖ Various fields to use radiations or radioactive materials

Since the first use in 1960s in Korea, its use has been expanded to various fields, including nuclear energy, medical application, education, industry, research, etc.

❖ Continuing increase of radiation workers

Number of radiation workers has increased about 5% annually during the past decade. This may result in increase of collective dose.

❖ Necessity of more active efforts to reduce occupational exposure

Currently, occupational exposure is recorded by government central dose registries to check excess of dose limit. However, more active efforts are necessary to reduce occupational exposure.

❖ Analysis of occupational exposure

As the first step to reduce occupational exposure, it is necessary to set an occupational exposure analysis system and analyze the data to know the current status of occupational exposure.

Objectives

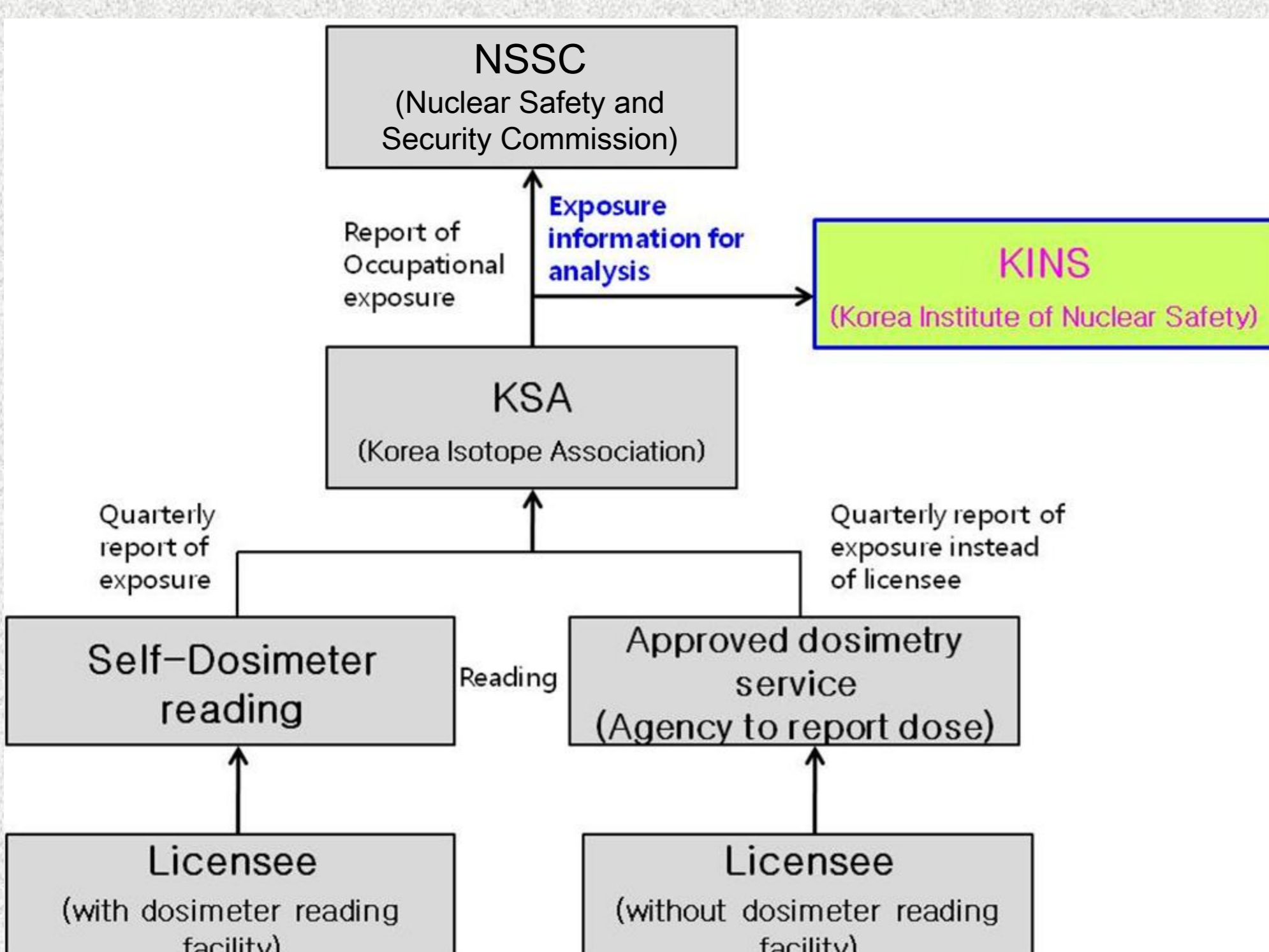
- ❖ To introduce Korea central system to record and analyze occupational exposure
- ❖ To provide summarized occupational exposure data by the central system, KISOE

Dose Record and Analysis System

❖ Two national dose registries in Korea

- Radiation workers other than diagnostic radiology
- Radiation workers in diagnostic radiology

❖ Central system to record and analyze occupational exposure (workers other than those in diagnostic radiology)



❖ Korea Information System on Occupational Exposure (KISOE)

KISOE was established at Korean Institute of Nuclear Safety (KINS) to evaluate trends in occupational radiation exposure for assessment of the effectiveness of radiation protection program.

Classification of radiation workers

❖ Radiation worker classification methods for exposure analysis

- by license type for dose report
- by job classification for dose analysis

❖ Classification by license type (10 categories)

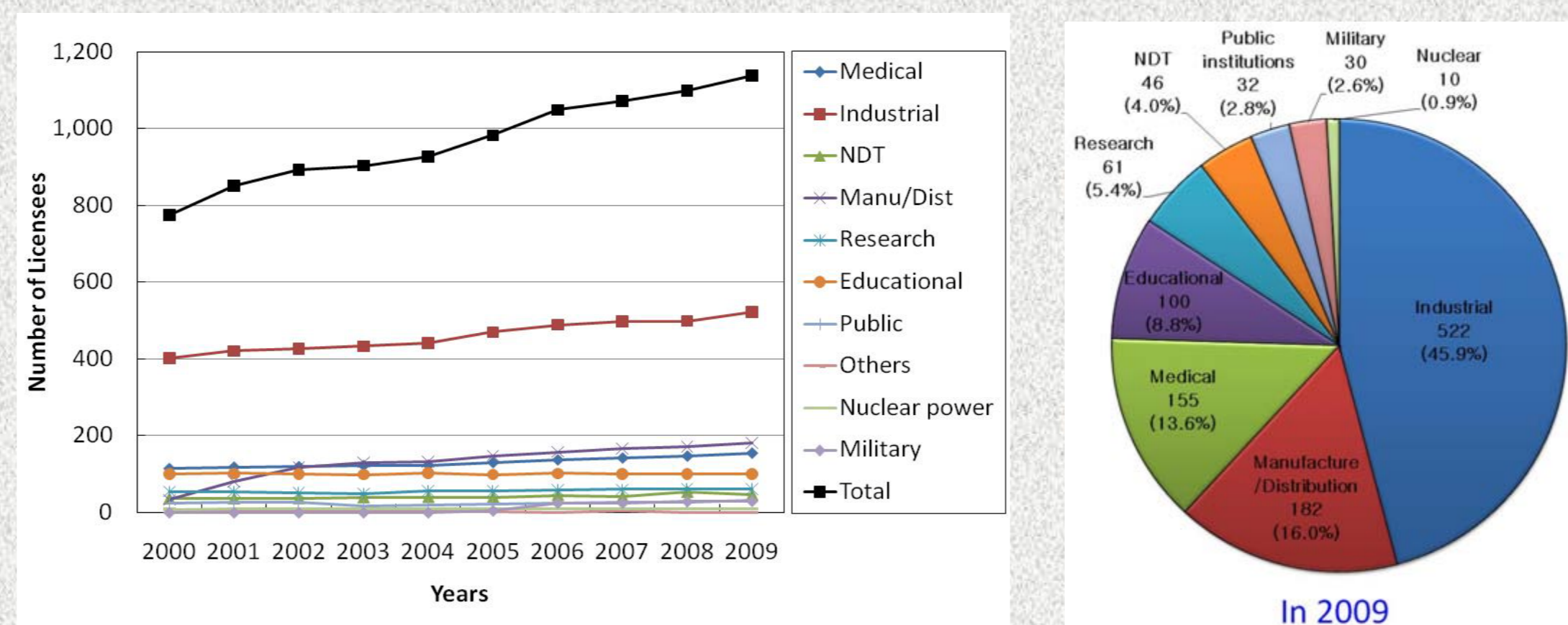
Nuclear energy, medical use, general industry, non-destructive testing (NDT), manufacturing and distribution, research institute, educational institute, public institution, military activity, and others.

❖ Classification by job categories

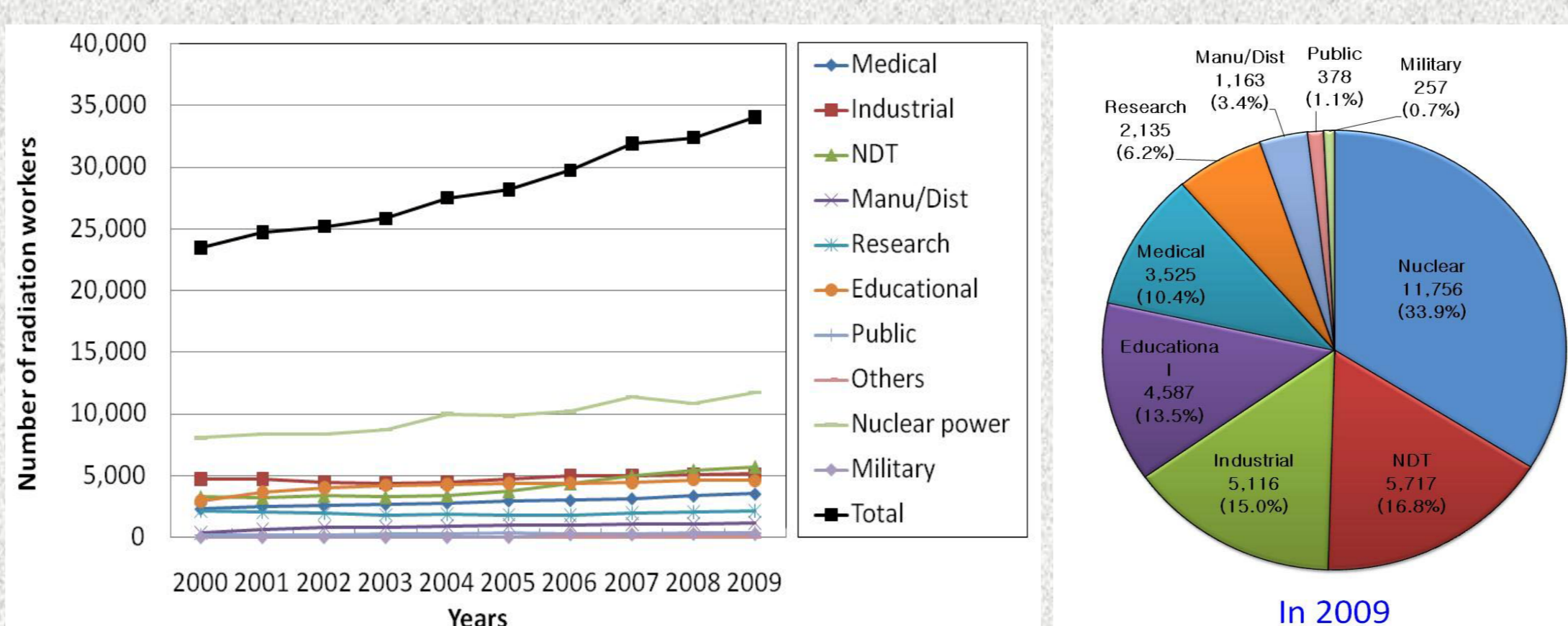
- 5 Main groups (Nuclear fuel cycle, Medical, Industrial, Military, Others)
- 31 sub-groups: more specific job classification

Occupational Exposure Data

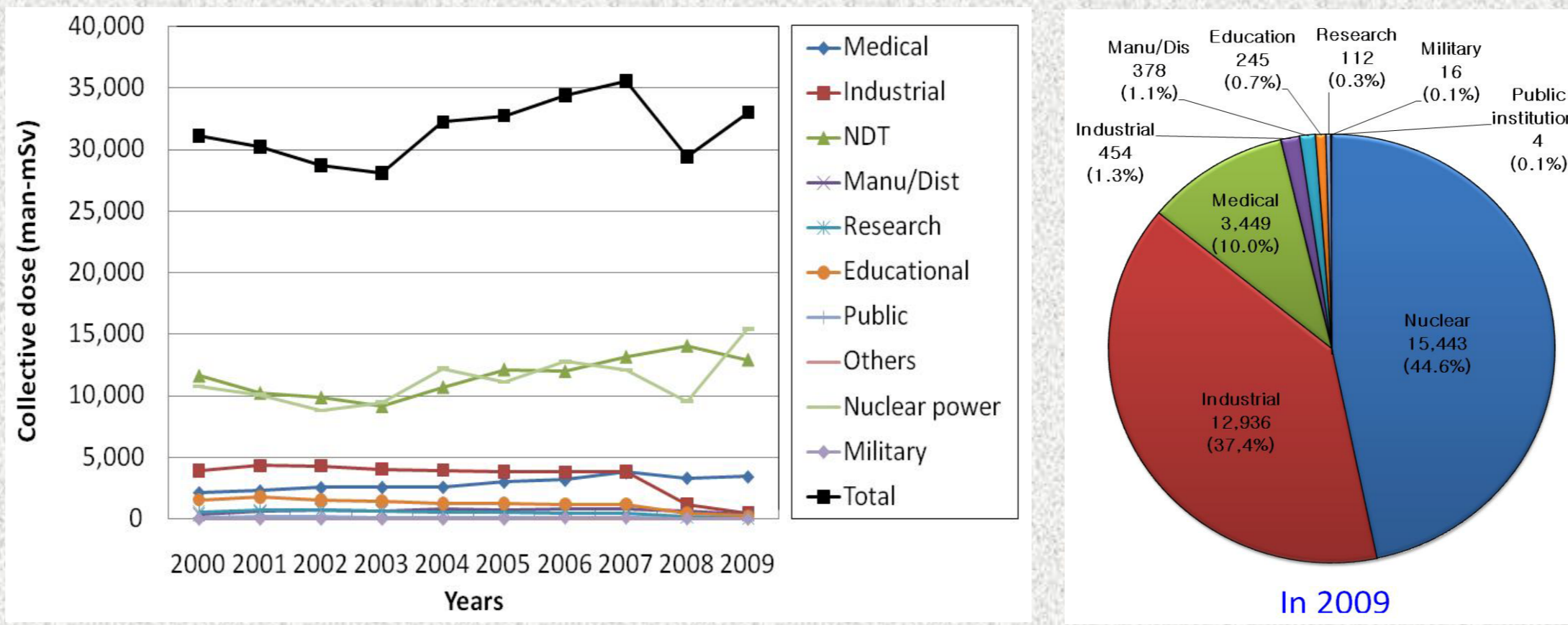
❖ Temporal trend of number of licensees



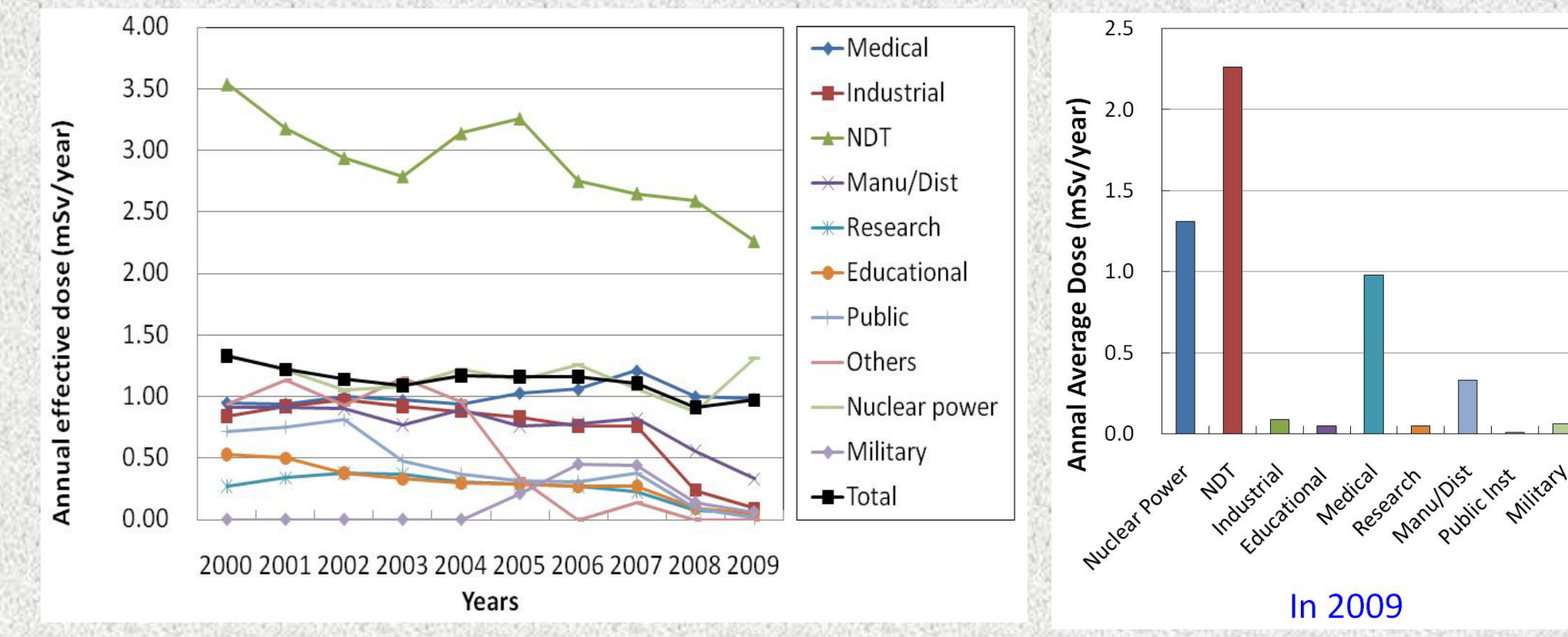
❖ Temporal trend of number of radiation workers



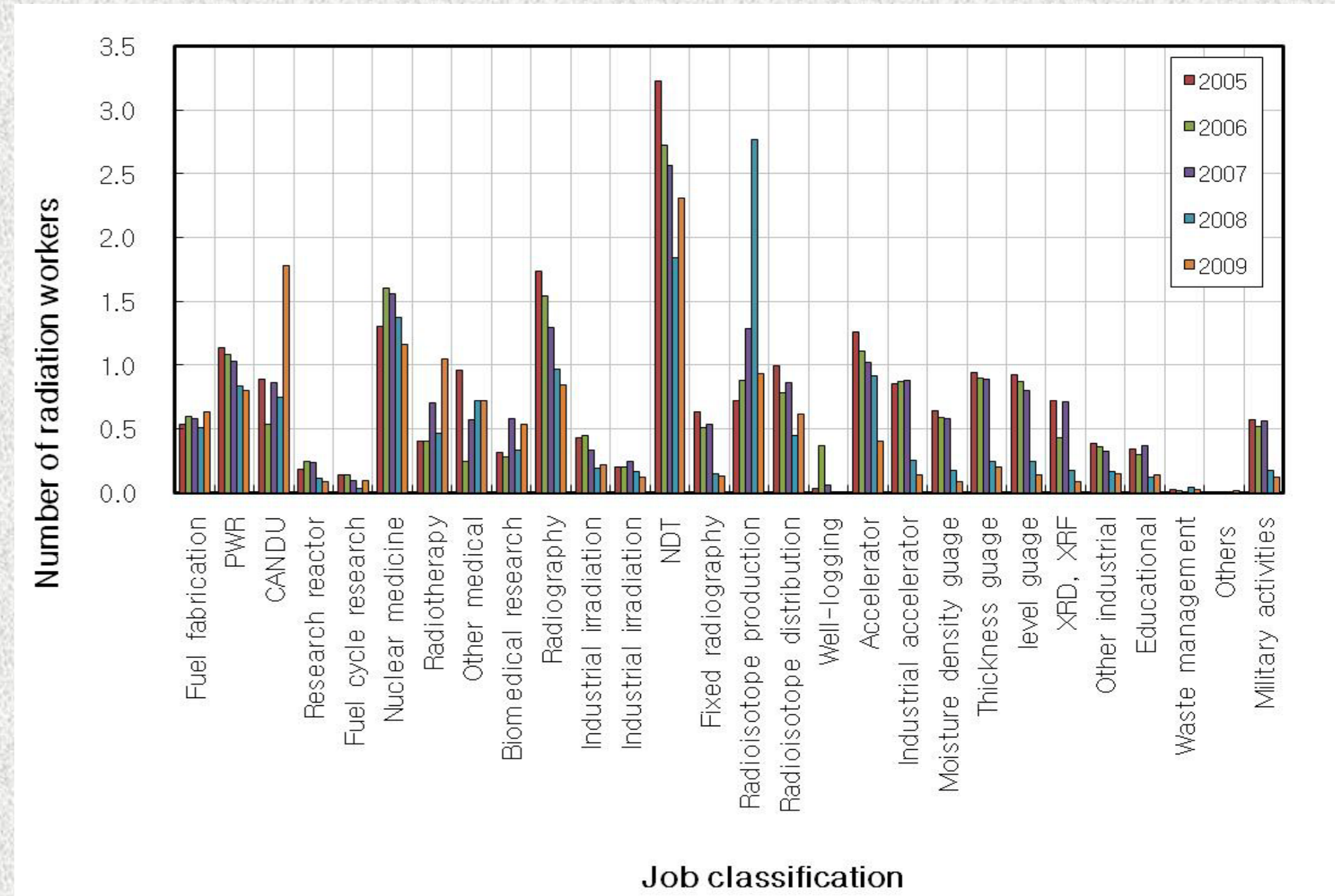
❖ Temporal trend of annual collective dose



❖ Temporal trend of annual average dose



❖ Radiation dose by job classification



Summary

- ❖ Currently, occupational exposure in Korea is recorded and analyzed by a central system on occupational exposure, KISOE operated by Korea Institute of Nuclear Safety (KINS).
- ❖ Annual average dose to radiation workers continuously decreased over time, resulting in 0.97 mSv/year in 2009.
- ❖ Annual collective doses have been kept at the same level during the past decade while number of radiation workers has increased about 5% annually.
- ❖ The findings can be interpreted that radiation protection for radiation workers have been continuously improved. One of the reasons can be attributed to the central system on occupational exposure, KISOE.

Acknowledgement

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