Determinants and Issues of New Comers to Nuclear Power in Asia

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Key Summary

- Despite the Fukushima accident, the number of new comers to nuclear power is still growing worldwide
- The expansion of nuclear power is especially high in Asia – 27.1% of nuclear power plants in operation, 71.0% under construction
- Drivers include the increased demand for energy, the desire for energy independence, and the concerns on climate change
- Top priority issues are public support, human resources, financial resources, safety, waste management, and potential suppliers
- Since these issues are definitely not easy, several countries have failed to operate nuclear power plants as they planned
- These challenges can be used as an opportunity to achieve more active and transparent level of regional cooperation

Introduction

Since all issues are interconnected, we cannot solve one issue without solving the others

Nuclear Nonproliferation

Nuclear Accidents

Nuclear Power

Radiological Terrors

Radioactive Wastes

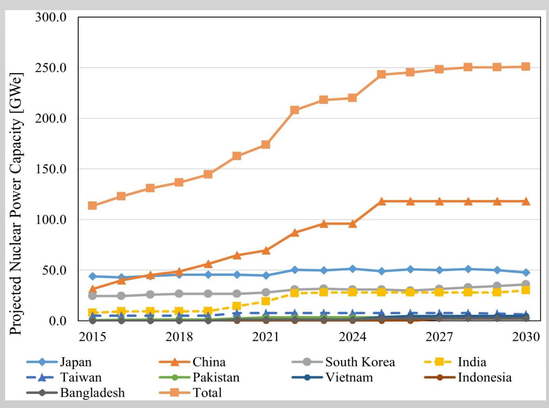
Demand and Supply

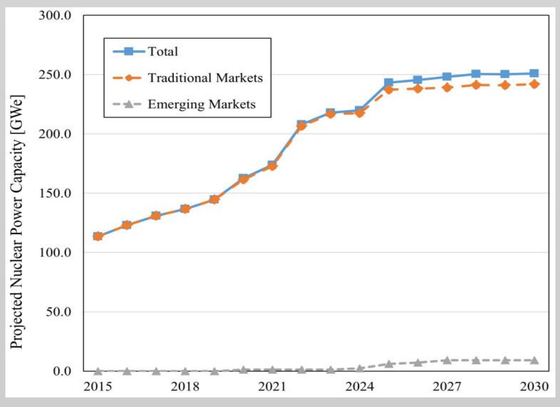
Supply

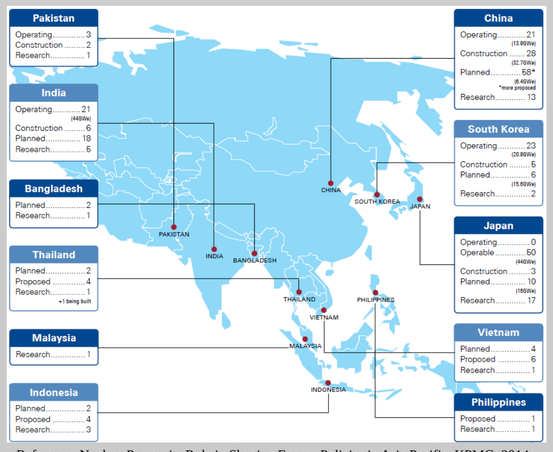
- *Used to be governed by 6 major supplies, USA, USSR, UK, France, Canada, and Germany, – about 90% capacity*
- *New suppliers built 30% new units after the Chernobyl accident including Japan, South Korea, China, and India*

Demand

- *The number of new comers is still growing, over 45 countries*
- *The market size of nuclear industry can double by 2030*
- *Asia has 27.1% of units in operation, 71.0% under construction*







Reference: Nuclear Power: its Role in Shaping Energy Policies in Asia Pacific, KPMG, 2014.

Determinants of New Comers

Drivers for nuclear power in new comers are still unchanged

- *The increased demand for low cost energy*
- *The desire for energy independence*
- *The concerns on climate change*

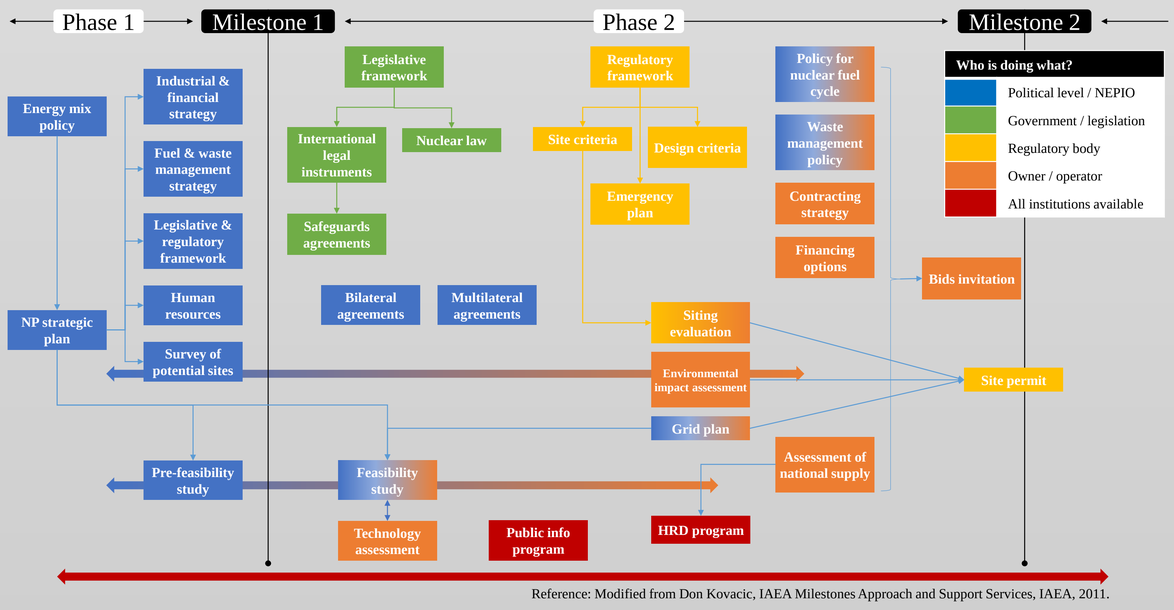
Issues of New Comers

Top Priority Issues

- *Obtaining public support to nuclear power program*
- *Developing high quality human resources*
- *Securing financial resources from inside and outside*
- *Ensuring safety in technical, legal, and regulatory domains*
- *Considering a solution for waste (initially not well recognized)*
- *Finding potential suppliers for nuclear power plants and fuels*

Risk of Nuclear Power Programs

- *A near completed plant cancelled in Philippines*
- *The Angra 3 unit delayed for 30 years in Brazil*
- *Only three of five units completed in Romania*
- *The French project in Finland delayed for over 4 years*
- *The two units in Korea delayed for fake equipment certificates*
- *The United States has cancelled 88 nuclear power plants under construction or in planning (38 units during construction)*



Reference: Modified from Don Kovacic, IAEA Milestones Approach and Support Services, IAEA, 2011.

Opportunity to Cooperation

Multinational Approach

- *Spent fuel issues often overlooked by new comers because it is the later step of the nuclear power program*
- *These challenges can be used as an opportunity to achieve more active and transparent level of regional cooperation*
- *Cooperation on safety goals, standards, and regulatory practices among three nuclear suppliers in East Asia*
- *Human resources to nuclear security and nuclear fuel cycle*

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