NUCLEAR ENERGY COMMISSION OF MONGOLIA

CURRENT STATUS OF NUCLEAR ENERGY FIELD IN MONGOLIA

Mr.CHADRAABAL Mavag

EXECUTIVE OFFICE OF
NUCLEAR ENERGY COMMISSION

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Phone: 976-70-139019; 976-70-131609
E-mail: office@nea.gov.mn
Website: http://www.nea.gov.mn

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Mongolia at Glance:

Population
3.04 million

Area
1.5 million km.sq

National Flag

Temperature Difference
-50C +50C

Capital city
Ulaanbaatar

Inflation
2.0%

GDP
$36.6 billion

GPD growth
3 %

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Legal Framework on Nuclear Energy

- Sustainable Development Concepts of Mongolia -2030/2016/
-
- National Security Concept of Mongolia /2010/

- State Policy on Exploitation of Radioactive Minerals and
- Peaceful Uses of Nuclear Energy /2009/

- Nuclear Energy Law /2009, amended in 2015/

- Programme for implementation of the State Policy /2009/

- Government's Action Plan for the period of 2016-2020

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CONTENTS OF STATE POLICY

Main objectives

- Exploitation of radioactive minerals
- Peaceful uses of nuclear energy as a electricity generator
- Introduction of nuclear innovative technologies into social-economical sectors
- Ensure radiation protection and nuclear safety

Other objectives

- develop national infrastructure and capacity building for nuclear science and technology
- develop international cooperation

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MAJOR ACTIVITIES

- ✓ Since 2012 Nuclear power programme has been postponed due to public awareness and the Fukushima Accident issues.
- ✓ Subsequently, major activities including research and studies in the field of nuclear power infrastructure have been slowed down.
- ✓ However, HRD for nuclear power is active, in case of the turnover of the public awareness. NEC is playing a key role in the development of HRD.
- ✓ Promoting the benefits of nuclear power programme, including organizing seminars and workshops for nuclear power applications to the teachers, lecturers and staff of government organizations, and publishing newsletters etc.
- ✓ The Nuclear Energy Commission conducted a radiation awareness study in the provinces of Dornogobi, Sukhbaatar and Arkhangai " with considerable amount of uranium deposit".
- ✓ The National university of Mongolia with the support of the nuclear energy commission conducted a survey on the use of nuclear energy.

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RECENT DEVELOPMENT

- **The Parliament adopted Sustainable Development Concepts of Mongolia-2030 in February 2016. This states the exploitation of nuclear power in 3 steps.**

- **Parliament and local elections are conducted recently and the formation of the new government is finalized and**

- **Action plan of the Government is being drafted and 4 uranium exploitation licenses have been issued this year.**

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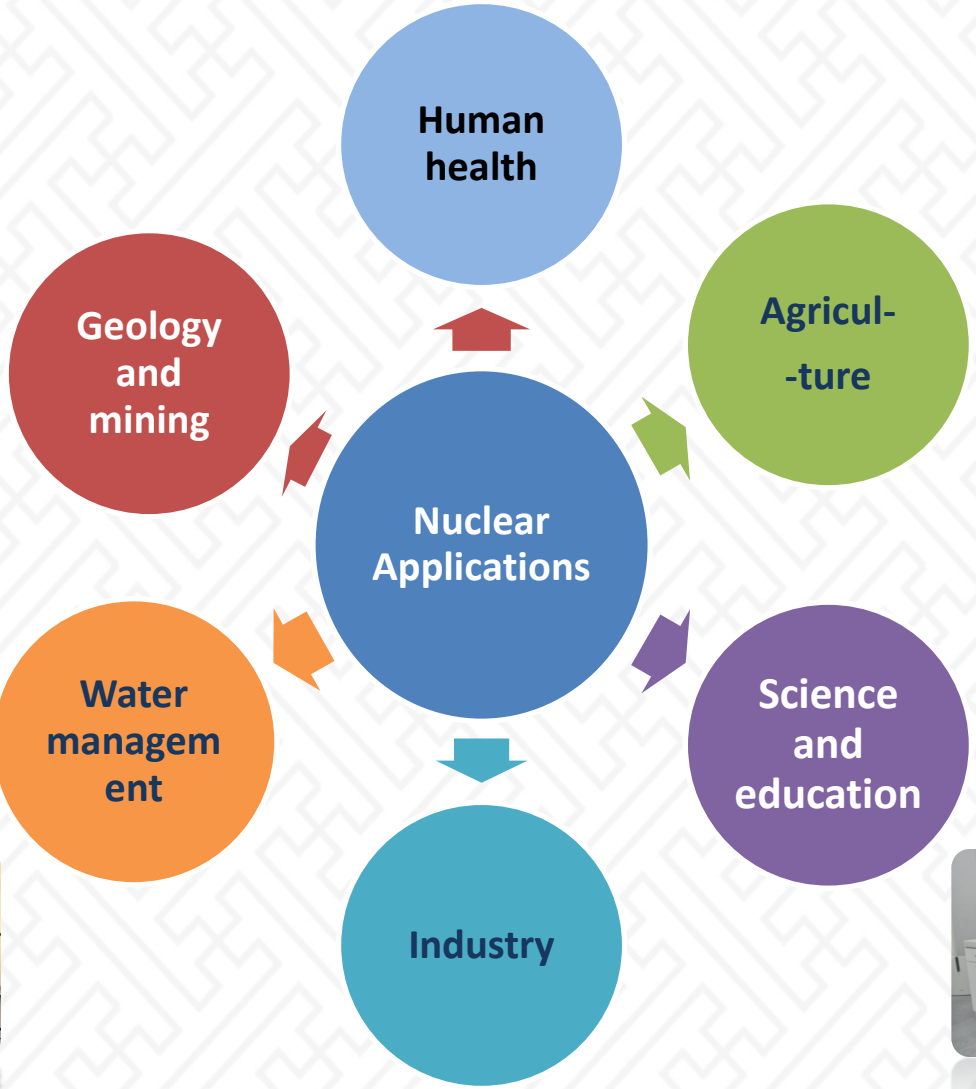
NUCLEAR TECHNOLOGY APPLICATIONS IN MONGOLIA



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SCIENCE AND EDUCATION

- HRD at local universities /NUM, MUST, MULS etc./
- Fundamental and applied research at research and educational institutes /NRC, IPT, IAG, etc./
- Material engineering and new material research (MT-22 electron beam accelerator) and other nuclear technique including NDT)
- Nuclear analysis for archeology and geology at laboratories




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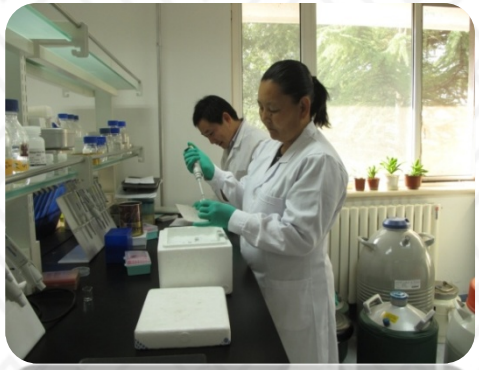
AGRICULTURE

- Farming
  - Mutation breeding
  - Soil research /degradation and determination/
  - Bio fertilizer production
- Animal husbandry and veterinary medicine
  - Diagnosing and treatment the animal infectious and zoonotic diseases
  - Vaccine production



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IN HUMAN HEALTH

- Cancer treatment /teletherapy machine with Co-60, brachytherapy apparatus, computerized simulator, treatment planning system, gyno-source brachytherapy apparatus and etc./
- Diagnosis /renal studies, bone scan, myocardial perfusion imaging, hepatobiliary study, sentinel node scintigraphy, lung perfusion and ventilation scan, RIA tests for thyroid function, thyroid scans, whole body scans for I-131 etc./
- Performed about 2800 patients in NM annually.

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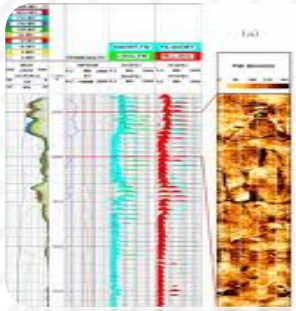
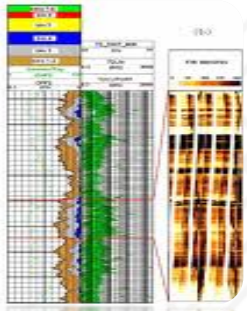
IN GEOLOGY AND MINING

- **Exploration companies intensively using nuclear technology for geological surveys including air surveys and bore-hole logging;**
- **Laboratories including Central Geological Laboratory are conducting elemental and other analysis using sophisticated modern nuclear analytical equipment /EDXRF, WDXRF, Portable XRF, ICP-MS, Gamma spectrometry/ and**
- **Major mining and milling enterprises using radioactive sources for determination of product quality, contents, structure and processing;**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INDUSTRY AND OTHER FIELD

- Non destructive testing, product quality and productivity /power plants, mines and other infrastructure facilities/
- Customs control
- Technological process control for complex industrial system /mining and milling plants/
- Geo-ecological and geographical surveys /water, air and soil/
- Air pollution monitoring by nuclear techniques
- Forensic analysis

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Main Counterparts

Health	• National Cancer Center • First State Central Hospital • National Center for Maternal and Child Health
Food and agriculture	• State Central Veterinary Laboratory • Institute of Plant and Agricultural Science /MULS/ • Institute of Veterinary Medicine • Research Institute of Animal Husbandry
Mining and geology	• Exploration companies for petroleum, U, coal, etc • Mining and milling factories • All research laboratories
Education and science	• Nuclear Research Center /NUM/ • Institute of Physics and Technology /MAS/ • Non Destructive Testing Center /MUST/ • Institute of Astronomy and Geophysics /MAS/
Environment and radiation safety	• Institute of Geography and Geo-ecology /MAS/ • General Agency for Special Inspection /Regulatory body/

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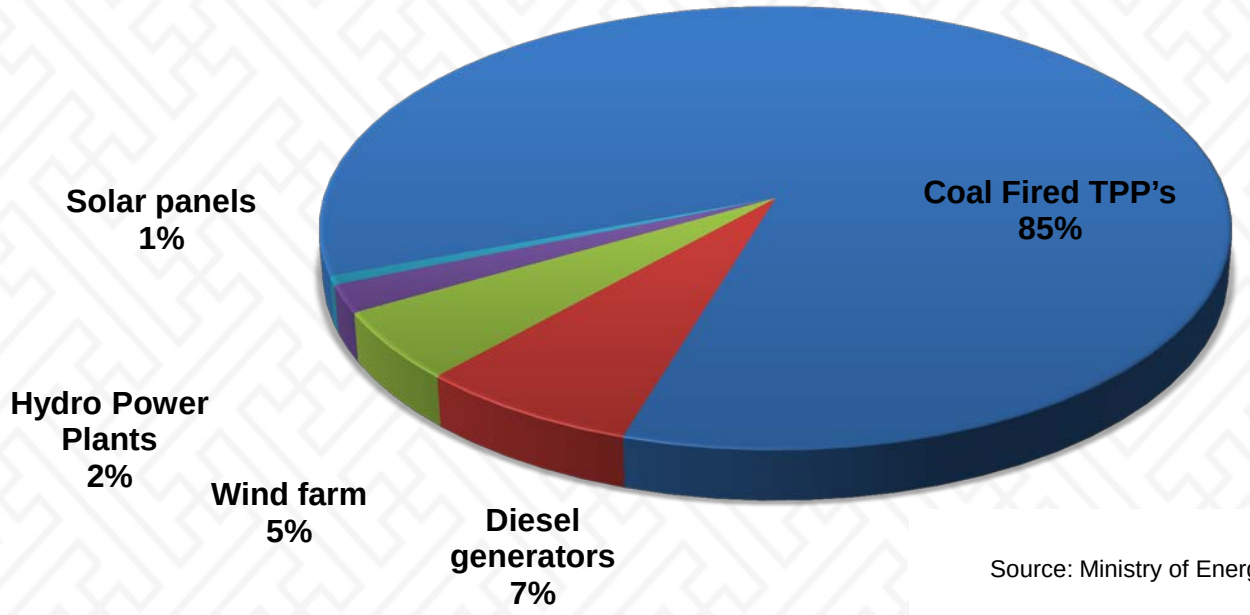
Electricity Production Capacity /2014/

Installed capacity by source



Source: Ministry of Energy

Electricity Production Capacity, MW	1082

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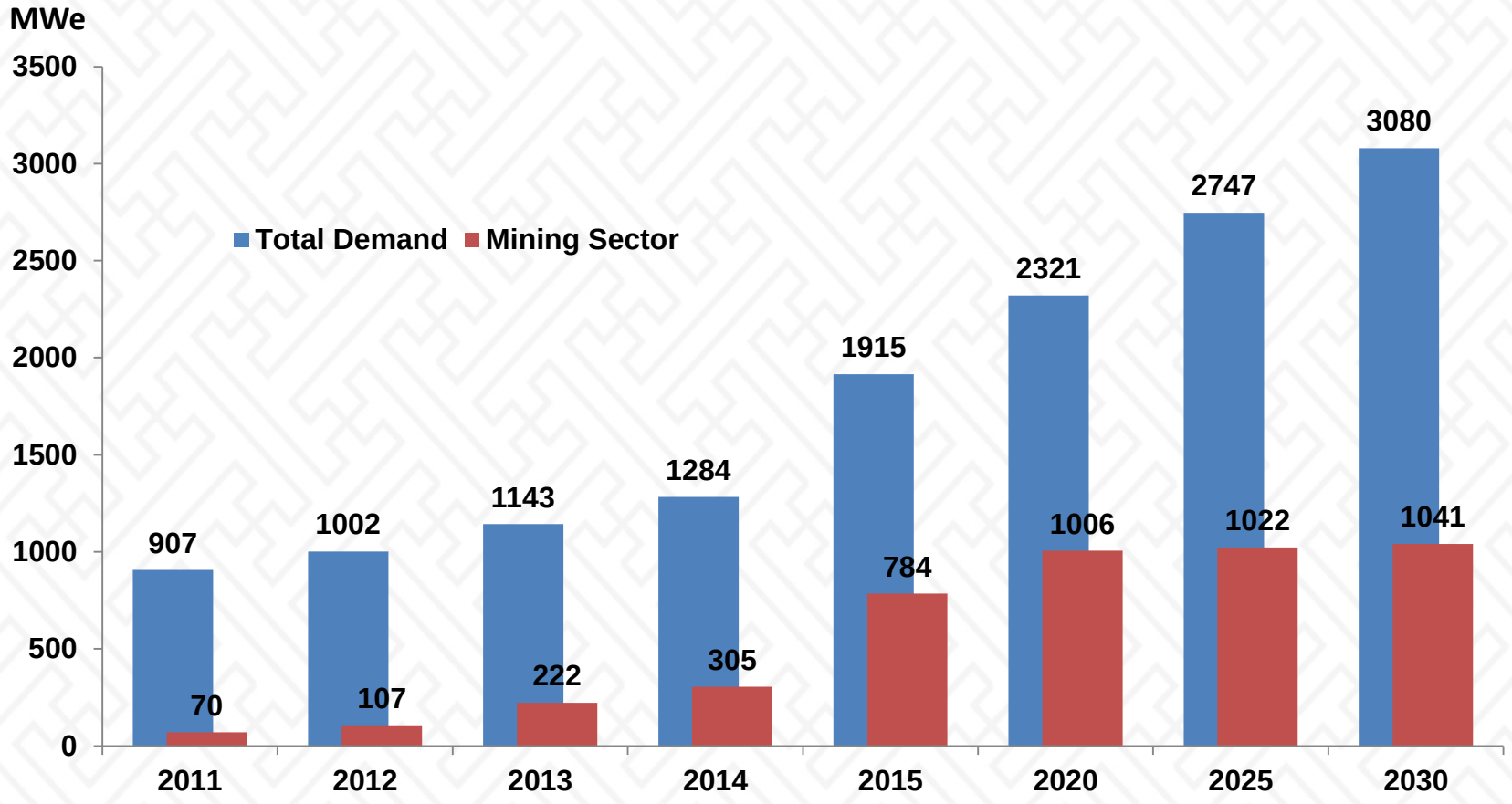
DEMAND FORECAST, 2011-2030



Source: Energy Authority of Mongolia, 2012

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STAKEHOLDER INVOLVEMENT

- ✓ In accordance with nuclear related activities, stakeholder engagement activities are essential for uranium mining issues.
- ✓ The Nuclear Energy Commission is considering to create a “Science and Information Center” in order to provide science-based information to the public and tackle misleading information in a line with other ministries.
- ✓ The Science and Information Center will sensitize the general public and pedagogically provide youngsters with mining impact on the economy, environment so that they can make rather rational deduction than emotional.

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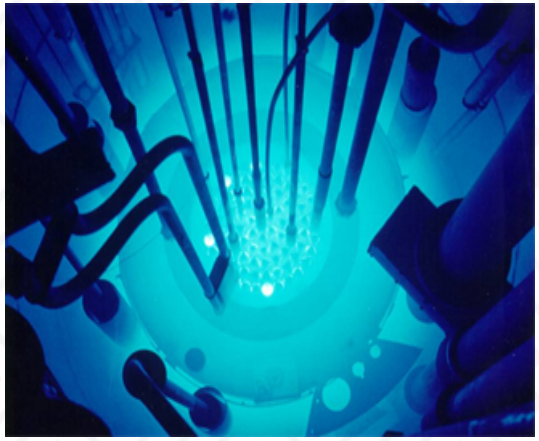
FURTHER ACTIVITIES

- ✓ To update the plan of implementation program for state policy on the exploitation of radioactive minerals and nuclear energy;
- ✓ To establish the “National Institute of Nuclear Research and Technology”;
- ✓ To collaborate with the other countries in the field of nuclear science and technology;
- ✓ To work with media and the public for the promotion of nuclear science and technology



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THANK YOU FOR YOUR ATTENTION

NUCLEAR ENERGY COMMISSION
ULAANBAATAR
MONGOLIA
E-MAIL: OFFICE@NEA.GOV.MN
WWW.NEA.GOV.MN