

7th Review Meeting of the Convention on Nuclear Safety

Presentation of National Report by Iceland Country Group 5

Sigurður M Magnusson
Director

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GEISLAVARNIR RÍKISINS
ICELANDIC RADIATION SAFETY AUTHORITY

Presentation outline

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 - Generation of power in Iceland
 - The Regulatory Authority
 - Emergency preparedness
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- 6th Review Meeting – Special Rapporteur Challenges
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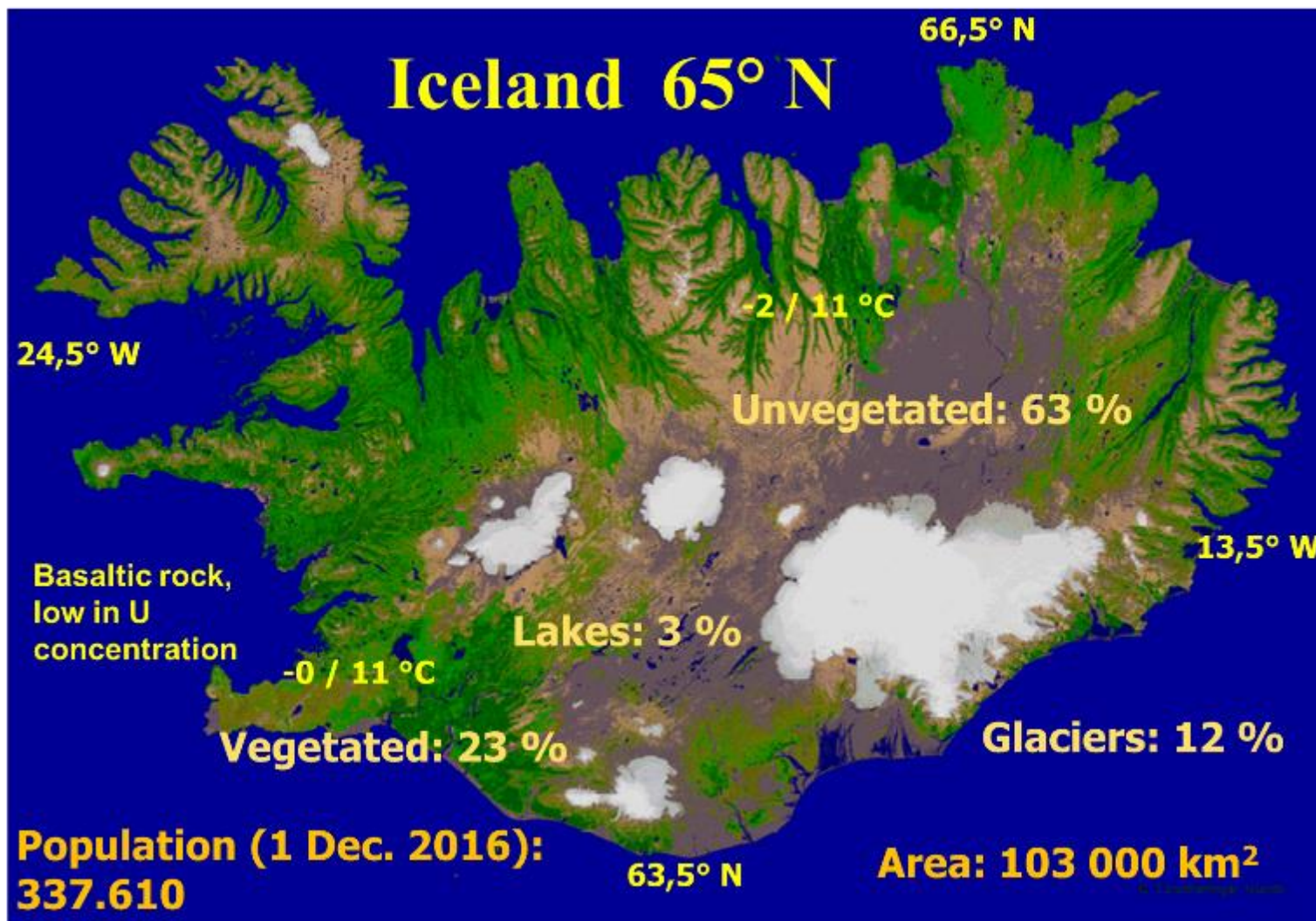


Summary of basic information (1)

- Iceland signed the CNS on 21 September 1995
- CNS came into force for Iceland on 2 September 2008.
- There are no nuclear installations in Iceland and no nuclear reactors in operation.
- There are no plans for any such activities.
- Diverse use of ionizing radiation in medicine, research, industry.
- The Act on Radiation Protection is the legal basis for regulating the use of ionizing radiation, emergency planning, waste management and discharges to the environment.
- The Icelandic Radiation Safety Authority (IRSA) is the regulatory authority. Its role is to implement safety measures against radiation from radioactive substances and radiological equipment.



Summary of basic information (2)



Generation of power in Iceland (1)

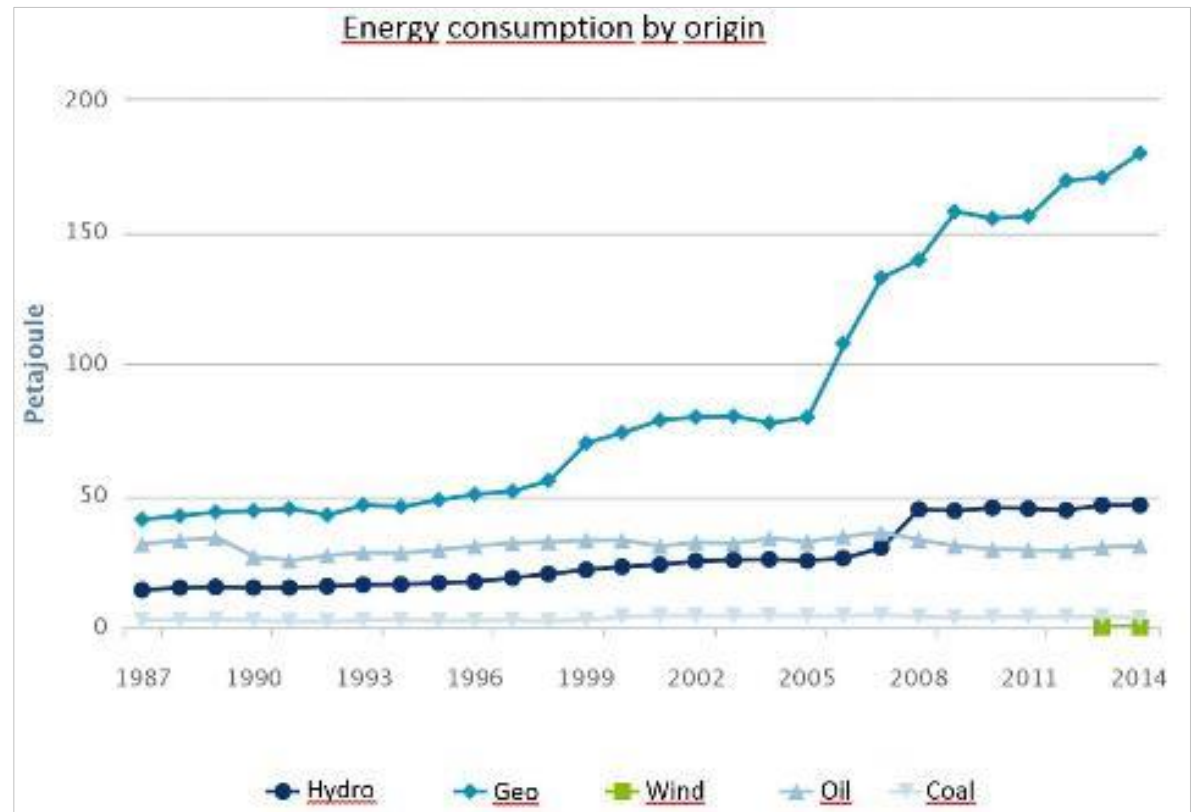
- Ample resources of renewable energy:
 - **Geothermal energy** used for heating, utilisation began in Reykjavík in 1930's.
 - Increasing use of geothermal energy to produce electricity.
- Nuclear energy is not needed in Iceland: small society + other available energy sources.



Generation of power in Iceland (2)

Most of electricity comes from **hydro-**electric power plants.

More than 80% of energy consumption in Iceland is of domestic origin, i.e. either geothermal or hydro-electric.



Considerations of use of Nuclear Power

- The early use of Nuclear Power in the Nordic countries was followed closely by Iceland
- An offer was received from General Electric at the beginning of **1958** for the construction of a small NPP (26,2 MW thermal) for generation of electricity and heating
- Plant was to be in Heimaey, the largest of Vestmann Islands



Potential problems with a NPP in a geologically active area !

The construction of an NPP was not considered economically feasible, which was just as well.

Heimaey made world news in 1973, with a volcanic eruption at the edge of town. The whole Island had to be evacuated in a few hours.



Regulatory authority (1)

- The regulatory authority (IRSA) reports to the Minister of Health.
- IRSA regulates uses of ionizing radiation, nuclear safety and security, emergency preparedness and radioactive waste.
- “One stop shop” for everything radiological or nuclear in Iceland.
- Scope of activities covers all uses of ionizing radiation and uses of non-ionizing as relates to patients and the public.
- Main focus on medical applications and emergency preparedness including environmental monitoring.
- IRSA has a staff of 10 of which 7 are technical experts with an academic background.
- The organisational structure of IRSA is flat. All activities carried out as projects.
- Extensive participation in international cooperation.



Regulatory authority (2)

- IRSA holds, since 2008, for all of its activities a Quality Management System ISO 9001 certification (ISO 9001) by the BSI (British Standards Institute).
- First among national authorities in Iceland to obtain an ISO 9001 certification for all activities.
- There is no organization in Iceland concerned with the promotion or utilization of nuclear energy.
- Energy issues are not under the auspices of the Minister of Health



Emergency preparedness (1)

- The Icelandic Radiation Safety Authority (IRSA) is the National Competent Authority for nuclear emergencies in terms of the Convention on Early Notification of a Nuclear Accident.
- IRSA is responsible for:
 - the radiological part of measures concerning all types of radiation emergencies, including analysis of threats,
 - coordination of emergency preparedness with internationally accepted practices
 - the operation of emergency response and radiation measuring systems and other measures relating thereto.



Emergency preparedness (2)

- A nuclear accident abroad is very unlikely to have a significant impact on health in Iceland, but the societal and economic impact can be significant.
- **Emergency preparedness** is based on two main factors:
 - Ability to detect any significant increase in radionuclide concentration and radiation dose rate
 - Fast and efficient information exchange and assessment of real or assumed nuclear or radiological threats.

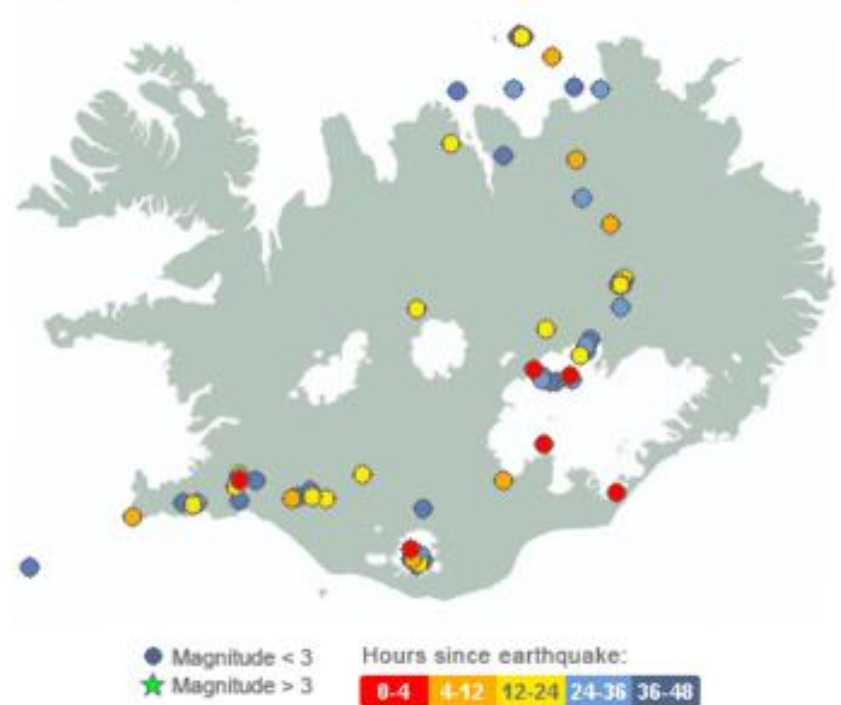


Emergency preparedness (3)

The nuclear and radiological emergency preparedness in Iceland is integrated with other fields of emergency preparedness, notably natural hazards. All emergency response institutions have a common point of coordination. Interaction with the public is exercised on a regular basis.



Earthquakes during last 48 hours. at 15 Mar 15:35 GMT
Preliminary results



Changes in the national programme since the last Review Meeting

- There have been no changes to Iceland's energy programmes as to the possible use of nuclear energy: there are no plans to implement a national nuclear energy programme.
- The legislative framework has been revised resulting in minor changes entering into force on 1 January 2014.
- Revised regulations were issued in December 2015 and entered into force in January 2016.
- The most important change relates to inspections carried out by the Authority.



Safety improvements for existing Nuclear Power Plants

As there are no Nuclear Power Plants in Iceland
this topic is not relevant.



Response to the Challenges and Suggestions of the 6th RM and to international peer review missions results

The 6th RM identified the following three challenges for Iceland:

- A. Being a small country, Iceland is experiencing challenges in recruiting qualified persons for the regulatory body. Furthermore, there is a challenge justifying the use of current and increased resources for RP.
- B. Maintaining the independence of the regulatory body.
- C. Even though “nuclear safety and security” is not mentioned directly in the Act, the regulatory body (IRSA) has to undertake tasks related to “nuclear safety and security”, as needed.



Response to the Challenges and Suggestions of the 6th RM and to international peer review missions results (A)

A. Being a small country, Iceland is experiencing challenges in recruiting qualified persons for the regulatory body. Furthermore, there is a challenge justifying the use of current and increased resources for RP.

- Finding qualified persons in a small nation with few experts is an ongoing challenge. IRSA addresses this challenge by interacting with students at the university level. A related challenge is to ensure transfer of knowledge and a suitable age distribution of experts. IRSA addresses this challenge by employing a good mixture of young and old experts.
- Another ongoing challenge is to maintain and increase competence. The solution adopted is to be actively involved in international co-operation.
- As for justification of current and increased expenses, [IRSA] has taken steps to enhance its visibility i.e. news, website, outreach activities focusing on the societal value and importance of effective radiation safety.

Follow Up Status as per draft CRR: "Many relevant processes have been set in place. However, all of these are ongoing process and will be continued in the future, and knowledge management should also be developed, hence this challenge might be considered as **Open".**



Response to the Challenges and Suggestions of the 6th RM and to international peer review missions results (B)

B. Maintaining the independence of the regulatory body.

- Actions to strengthen the independence of the Authority have been taken following an IAEA advisory mission to Iceland in 2014 to review the regulatory infrastructure. In particular the Authority now decides on frequency of inspections but before this was decided in a regulation issued by the Ministry of Health.
- The Authority is now effectively independent in its safety related decision making and has the resources necessary to fulfil its statutory obligations.

Follow Up Status as per draft CRR: "As the Authority is now effectively independent in its safety related decision making and has the resources necessary to fulfil its statutory obligations, then this challenge might be considered as **Closed".**



Response to the Challenges and Suggestions of the 6th RM and to international peer review missions results (C)

C. Even though “nuclear safety and security” is not mentioned directly in the Act, the regulatory body (IRSA) has to undertake tasks related to “nuclear safety and security”, as needed.

- [IRSA] undertakes activities related to “nuclear safety and security” as needed. These are not specified directly in the legislation but collaborating with foreign institutions [...] is specified in the legislation as one of the tasks. In this context nuclear issues is taken to mean both nuclear safety and security. The Act also states that the Minister may request [IRSA] to address certain matters or projects relating to its duties under this Act. Nuclear safety and security are matters clearly related to the duties of [IRSA].

Follow Up Status as per draft CRR: “This challenge may be considered as **closed as the relevant processes have been set **in place**”.**



Response to the Challenges and Suggestions of the 6th RM and to international peer review missions results (C)

No suggestions to Iceland were made at the 6th RM.



Response to the Challenges and Suggestions of the 6th RM and to international peer review missions results (Cont.)

There have been no *international peer review missions* as such. However, **the IAEA conducted an advisory mission to Iceland in 2014 to review the regulatory infrastructure.**

Actions to strengthen the independence of the Authority have been taken following this mission. In particular, IRSA now decides on the frequency of inspections but before this was decided in a regulation issued by the Ministry of Health.

Since the last Review Meeting, the Country Group has taken note of these changes to the regulatory framework and the national nuclear programme:

- The Act on Radiation Protection [...] harmonizes towards the EU Acquis, provides licensing requirement and penal provision.
- Four of the five regulations on radiation protection and use of radiation have been revised in 2015 and entered into force in January 2016. The most important change is in relation to inspections carried out by the Authority, which now is determined by the Authority.



The Vienna Declaration

The principles outlined in the Vienna Declaration on Nuclear Safety guiding Contracting Parties in implementing the objectives of the CNS relate to states with nuclear installations.

These principles are not addressed in the NR of Iceland since Iceland has no nuclear reactors or nuclear facilities nor plans for such installations.



Fukushima Follow up since the 6th RM (1)

- Following Fukushima IRSA had a central role in the response and evaluation in Iceland, including giving advice to the Foreign Ministry and providing information to Icelandic citizens in Japan and their concerned relatives through the Icelandic Embassy in Japan.
- IRSA has improved capability to provide general information and advice to Icelandic citizens abroad in the case of a nuclear or radiological emergency through i.e. including arrangements for providing such information in exercises.



Fukushima Followup since the 6ht RM (2)

- Increased interest from the public and media regarding radiation and nuclear safety after Fukushima demonstrated the need for more public information on these issues.
- When Iceland was the first European country to detect radioactivity in air due to releases from Fukushima there was a media frenzy for half a day.

IRSA has:

- developed more public information on radiation and nuclear safety.
- exercised interaction with domestic and international media.



Current and future Challenges

- The Country Group has considered the following challenge as **open**:
- Being a small country, Iceland is experiencing challenges in recruiting qualified persons for the regulatory body. Furthermore, there is a challenge justifying the use of current and increased resources for RP.
- The Country Group has considered other previously identified challenges as **closed**; as per the draft CRR for Iceland “*2 out of 3 Challenges from the 6th Review Meeting have been closed*”.



Good Practices and Areas of Good Performance

The following Example of a Good Practice of Iceland was mentioned in the Rapporteurs report of the 6th RM.

- **Example of Good Practice:** ... intensive cooperation with the international community and other authorities given the geographical location, size of the country, and non-nuclear character of activities ...

The following Area of Good Performance of Iceland was identified by the Country Group:

- **Area of Good Performance:** The National Report of Iceland is comprehensive, transparent and well-structured for a country that has no plan in nuclear energy. It also demonstrates the commitment to safety [Proposed by Brazil and the USA].



Questions Raised from Peer Review of National Report

Art.	Question theme	Response summary
8	Information to the public: meetings to educate on the role of the Authority.	Main emphasis on information via web and in particular on cooperation with Civil Protection, which coordinates responses to any major hazards and conducts meetings with the public.
8	Courses in rad. protection for workers.	IRSA is the only provider of education and training in rad. protection.
8	Responsibilities of licence holders and employers regarding radiation protection training and qualification.	All licence holders are required to ensure the proper training and retraining of personnel and no licences are granted without the proof of such.
12	Approach to human factor engineering	No specific approach to the subject has been formalised.
15	Policies and/or plans to develop and maintain Authority's own safety culture, and to assess and supervise the safety culture of the licensees	IRSA has a QM system with an accredited certification to the ISO 9001:2008 quality standard for all its activities. In the inspection of licencees, IRSA focuses on the assessment of their quality management systems and provides advice as required.
16	Coordination on communication with the public.	The Information Act, the objective of which is to guarantee transparency in government administration and the handling of public interests applies to all operations of IRSA. Coordination on communication with the public is well established and tested on a regular basis
16	Review of licensee's local plans for on-site emergency preparedness and response prior to granting a license.	Yes, a review such plans is part of the licencing and inspection process. Any application needs to be supported by a plan ensuring safety and security, and no licence is granted without IRSA's review and approval of these plans.



Updates to National Report to 7th RM

- No updates.



Conclusions

- Iceland has no plans for a nuclear programme.
- The information provided in the National Report describes Iceland's full compliance with the Convention on Nuclear Safety.



Thank you.



GEISLAVARNIR RÍKISINS
ICELANDIC RADIATION SAFETY AUTHORITY