

# Nuclear Non-Proliferation, why it is so important and what I have learnt at the NEREC Summer School



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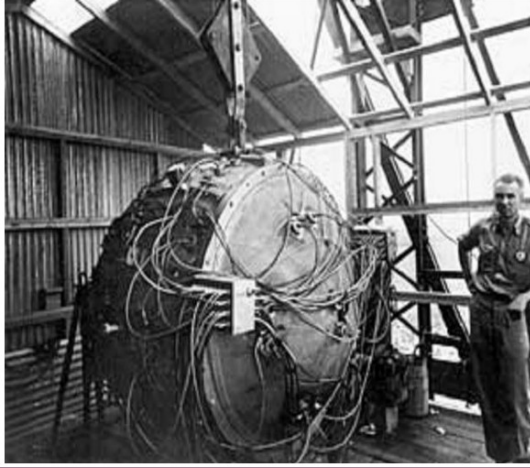


New reactor concepts and safety analyses for the Polish Nuclear  
Energy Program POWR.03.02.00-00.1005/17



- History
  - From 1945 - Manhattan Project and Atoms for Peace
  - IAEA
- Nuclear Nonproliferation
  - Irish Resolution and NPT
  - Nuclear Non-Proliferation Treaty
  - NPT now
- NEREC Summer School

# From 1945 - Manhattan Project and Atoms for Peace



The Gadget - the first atomic plutonium bomb detonated on 16 July 1945.

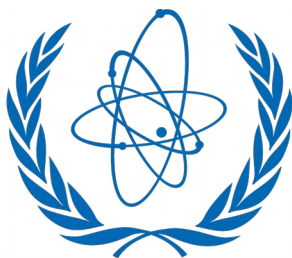


The title of a speech delivered by U.S. President D.D. Eisenhower to the UN General Assembly in New York City on December 8, 1953.



Eisenhower proposed the adaptation of nuclear technology for peaceful ends.

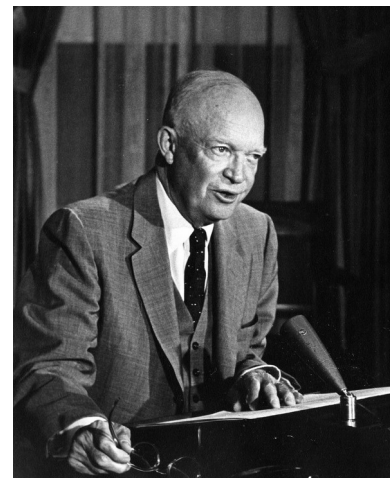
*“In fact, we did no more than crystallize a hope that was developing in many minds in many places ... the splitting of the atom may lead to the unifying of the entire divided world.”*  
~ President D.D. Eisenhower



## IAEA

International Atomic Energy Agency

*Atoms for Peace*



IAEA Missions:

- **Peaceful uses:** Promoting the peaceful uses of nuclear energy by its member states.
- **Safeguards:** Implementing safeguards to verify that nuclear energy is not used for military purposes.
- **Nuclear safety:** Promoting high standards for nuclear safety.

**“Irish Resolution”** is widely regarded as the forerunner of the Nuclear Nonproliferation Treaty (NPT).

A postulate from 1959 was to set up a special committee to deal with the challenges arising from nuclear proliferation.

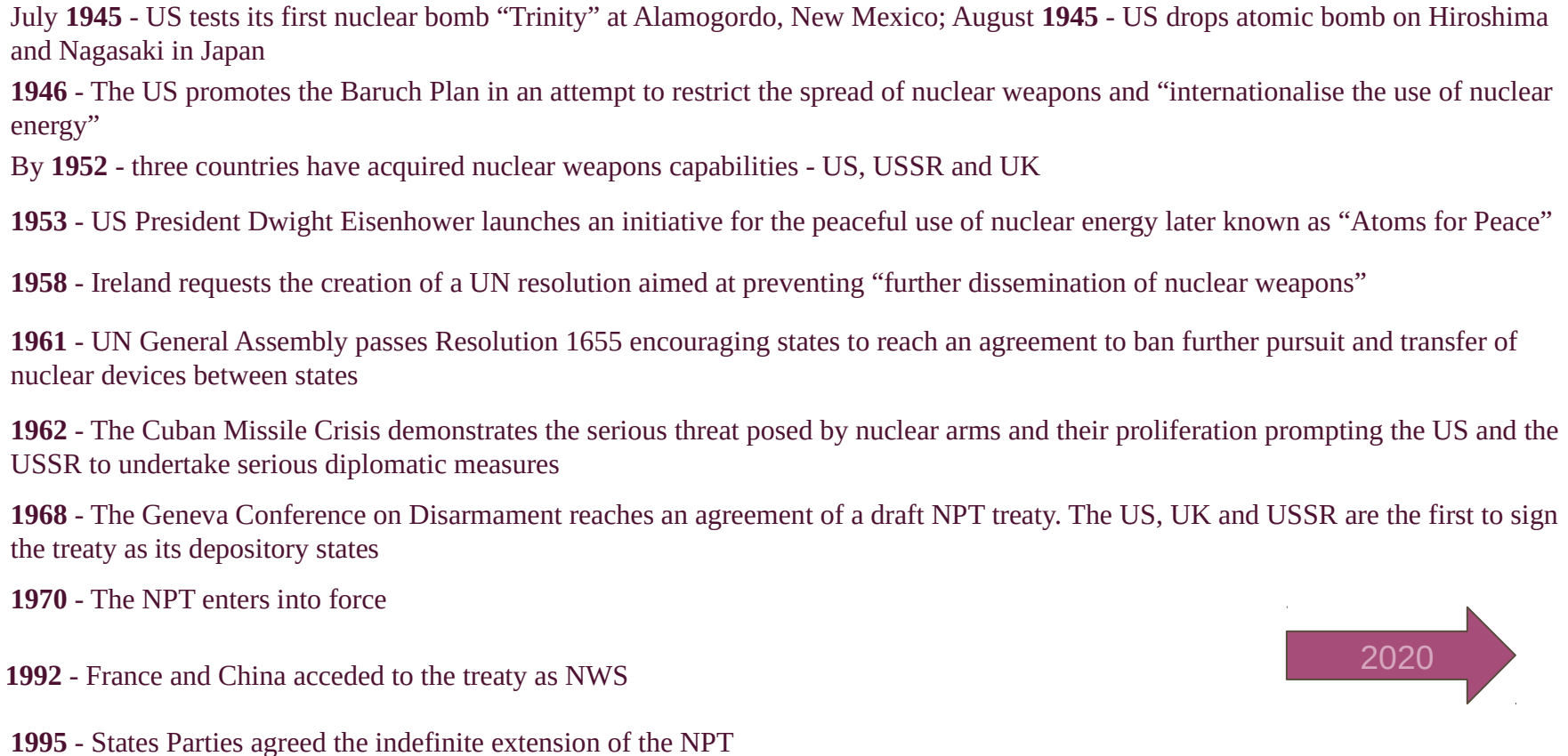


Minister for External Affairs Frank Aiken signing the Nonproliferation Treaty at the Moscow signing ceremony on 1 July 1968. Owing to his role in promoting nuclear nonproliferation at the United Nations during 1958-1961, he was the first person to sign the Treaty.

(Photo from Frank Aiken Papers, Archives, University College Dublin, item number P106/6942)



# How the NPT evolve?

- 
- A vertical timeline on the left side of the slide, consisting of a series of dark blue arrows pointing downwards. Each arrow is followed by a text entry describing a key event in the history of the NPT. The timeline starts with the US testing its first nuclear bomb in 1945 and ends with the indefinite extension of the NPT in 1995. A large blue arrow on the right points to the year 2020.
- July **1945** - US tests its first nuclear bomb “Trinity” at Alamogordo, New Mexico; August **1945** - US drops atomic bomb on Hiroshima and Nagasaki in Japan
  - 1946** - The US promotes the Baruch Plan in an attempt to restrict the spread of nuclear weapons and “internationalise the use of nuclear energy”
  - By **1952** - three countries have acquired nuclear weapons capabilities - US, USSR and UK
  - 1953** - US President Dwight Eisenhower launches an initiative for the peaceful use of nuclear energy later known as “Atoms for Peace”
  - 1958** - Ireland requests the creation of a UN resolution aimed at preventing “further dissemination of nuclear weapons”
  - 1961** - UN General Assembly passes Resolution 1655 encouraging states to reach an agreement to ban further pursuit and transfer of nuclear devices between states
  - 1962** - The Cuban Missile Crisis demonstrates the serious threat posed by nuclear arms and their proliferation prompting the US and the USSR to undertake serious diplomatic measures
  - 1968** - The Geneva Conference on Disarmament reaches an agreement of a draft NPT treaty. The US, UK and USSR are the first to sign the treaty as its depositary states
  - 1970** - The NPT enters into force
  - 1992** - France and China acceded to the treaty as NWS
  - 1995** - States Parties agreed the indefinite extension of the NPT

2020



# The Nuclear Non-Proliferation Treaty (NPT) 1/2

The Treaty on the Non-Proliferation of Nuclear Weapons was signed by Poland on 1 July 1968, and ratified on 3 May 1969. The ratifications were deposited on 12 June 1969. It entered into force in relation to Poland on 5 March 1970.

The NPT consists of a preamble and eleven articles

Articles I & II	Article III	Article IV	Article VI	Article X
<ul style="list-style-type: none"><li>• Prohibit member states from supplying or receiving nuclear devices, or assisting in their development or fabrication.<sup>1</sup></li></ul>	<ul style="list-style-type: none"><li>• Stipulates the IAEA safeguard and inspection responsibilities for NNWS governing their nuclear facilities.<sup>2</sup></li></ul>	<ul style="list-style-type: none"><li>• Recognizes the "inalienable right of NNWS to research, develop and use nuclear energy for non-weapon purposes".<sup>3</sup></li></ul>	<ul style="list-style-type: none"><li>• Commits member states to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control".<sup>4</sup></li><li>• Measures on assessing progress towards disarmament are not outlined.</li></ul>	<ul style="list-style-type: none"><li>• Outlines the right of states to withdraw giving 3 months notice if their supreme interests are under threat relating to nuclear weapons.</li></ul>

The Nuclear Non-Proliferation Treaty (NPT), A briefing by BASIC, April 2014



# The Nuclear Non-Proliferation Treaty (NPT) 2/2

## Three main pillars

Non-proliferation : preventing of the further spread and/or transfer of nuclear weapons and technologies, or the expansion of existing arsenals.

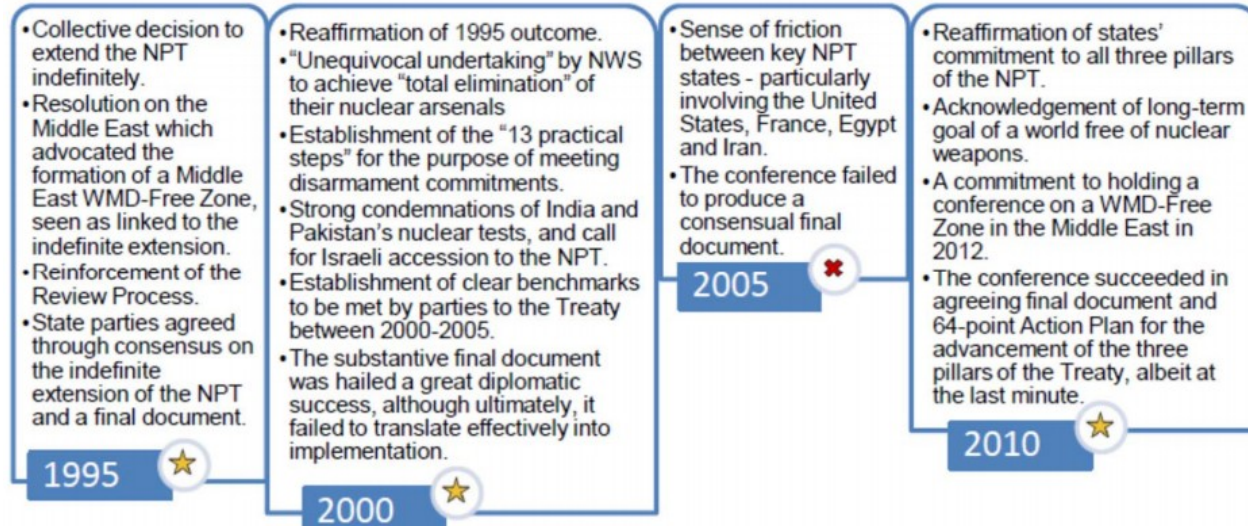
Disarmament : furthering the goal of achieving nuclear, and general and complete disarmament.

Peaceful use of nuclear energy : recognizing the right of states to nuclear energy for peaceful purposes and promoting international cooperation.

The NPT is the established foundation for global efforts to constrain nuclear weapons and to achieve a world free from nuclear dangers.



Article VIII, paragraph 3, envisage a review of the operation of the Nuclear Non-Proliferation Treaty every five years, which was reaffirmed by the States parties at the NPT Review and Extension Conference on 11 May 1995. The next NPT Review Conference is scheduled to be held at the United Nations Headquarters in New York in 2020.



Nuclear Nonproliferation Education and Research Center (NEREC) is the only University-based center dedicated to nuclear nonproliferation education and research in Korea Advanced Institute of Science and Technology (KAIST) in South Korea.

The NEREC Graduate Fellows Program is intensive short-term education and training course of nuclear nonproliferation for students. The Center has three objectives:

1. To train and nurture nonproliferation human resources.
2. To conduct nonproliferation policy research combining technical expertise and policy insights.
3. To engage in discussions on the peaceful use of nuclear technology and various aspects of nuclear nonproliferation.



NEREC Fellow Program included:

1. Group research work with international peer students with diverse background on selected topics of nuclear nonproliferation or related nuclear policy issues.



NEREC Fellow Program included:

2. Participation and poster presentation at NEREC Conference on Nuclear Nonproliferation.





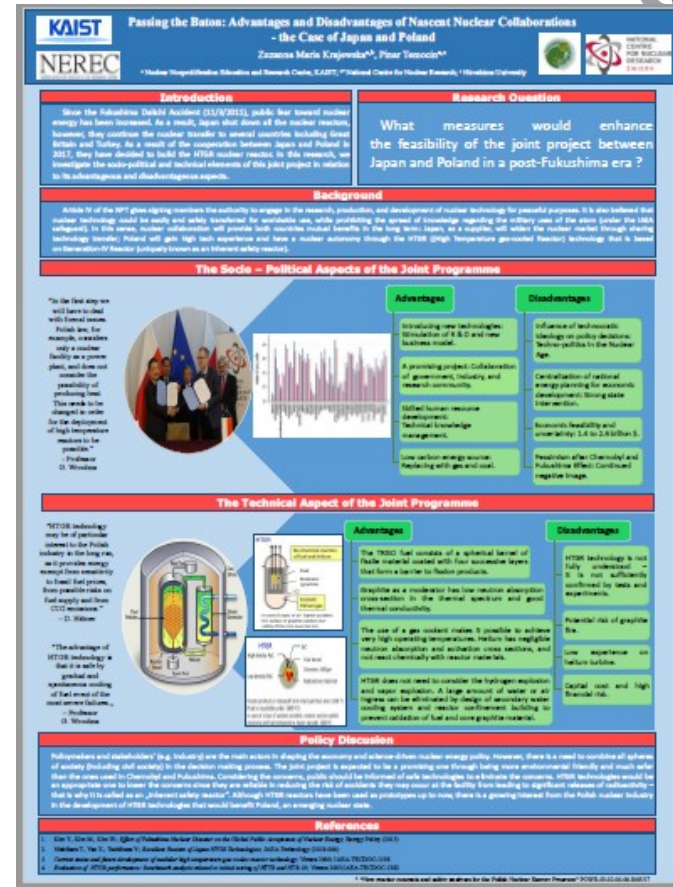
# Poster for NEREC Conference 2019

The „2019 International Conference on Nuclear Nonproliferation” aims are:

- To share knowledge and insights of current nuclear nonproliferation research and to develop further ideas.
- To promote global nuclear nonproliferation and peaceful use of nuclear energy.

The theme of 2019 NEREC Conference on Nuclear Nonproliferation is “Promoting Nuclear Nonproliferation” which will deal with:

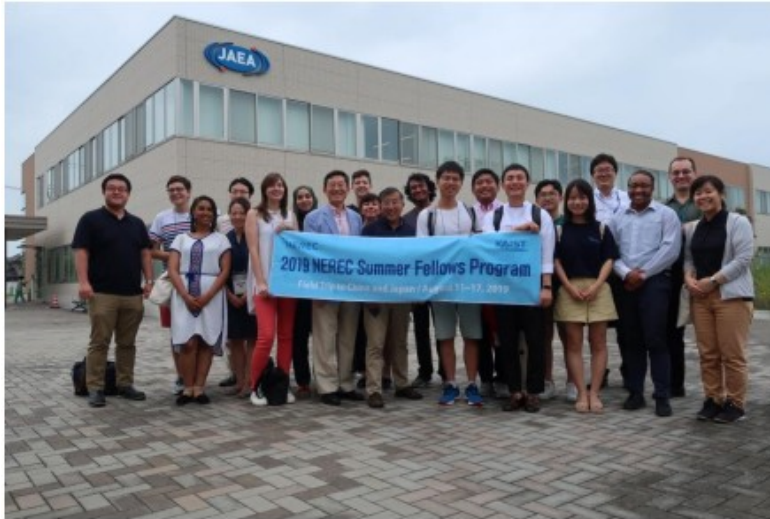
- recent Korean peninsula development and global nuclear nonproliferation;
- denuclearization of North Korea nuclear weapons;
- future of international security in Northeast Asia;
- Middle East nuclear development and nonproliferation;
- preparing for the future of global nuclear nonproliferation.



# NEREC Fellow Program (3/5)

NEREC Fellow Program included:

3. Field trips to Seoul, Gyeongju, China and Japan.





# NEREC Fellow Program (3/

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# Conclusions (???)

1. The NPT Treaty is a common good and its collapse would have disastrous consequences for global stability and predictability, first and foremost for NATO Allies. The consequences of not maintaining credible nuclear deterrence in the current volatile security environment could, however, be even more catastrophic for the Alliance.
2. The NEREC school gives the opportunity to educate young people in terms of non-proliferation, both in political and technical terms.





1. <https://www.britannica.com/event/Manhattan-Project>
2. [https://history.army.mil/html/books/011/11-10/CMH\\_Pub\\_11-10.pdf](https://history.army.mil/html/books/011/11-10/CMH_Pub_11-10.pdf)
3. <https://www.iaea.org/about/history/atoms-for-peace-speech>
4. <https://www.iaea.org/about/overview/history>
5. <https://nsarchive.gwu.edu/briefing-book/nuclear-vault/2018-10-29/60th-anniversary-irish-resolution-forerunner-npt>
6. [https://www.basicint.org/wp-content/uploads/2018/06/basic\\_npt2015\\_final.pdf](https://www.basicint.org/wp-content/uploads/2018/06/basic_npt2015_final.pdf)
7. <https://repozytorium.amu.edu.pl/bitstream/10593/9690/1/Fiedler%20Iran%20a%20re%C5%BCim%20nieprolifracji.pdf>
8. <https://www.armscontrol.org/factsheets/Timeline-of-the-Treaty-on-the-Non-Proliferation-of-Nuclear-Weapons-NPT>
9. <https://www.un.org/en/conf/npt/2015/pdf/background%20info.pdf>
10. <https://carnegieendowment.org/2017/03/20/toward-nuclear-firewall-bridging-npt-s-three-pillars-pub-68300>
11. <https://www.un.org/disarmament/wmd/nuclear/npt/>

# Thank you for attention



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