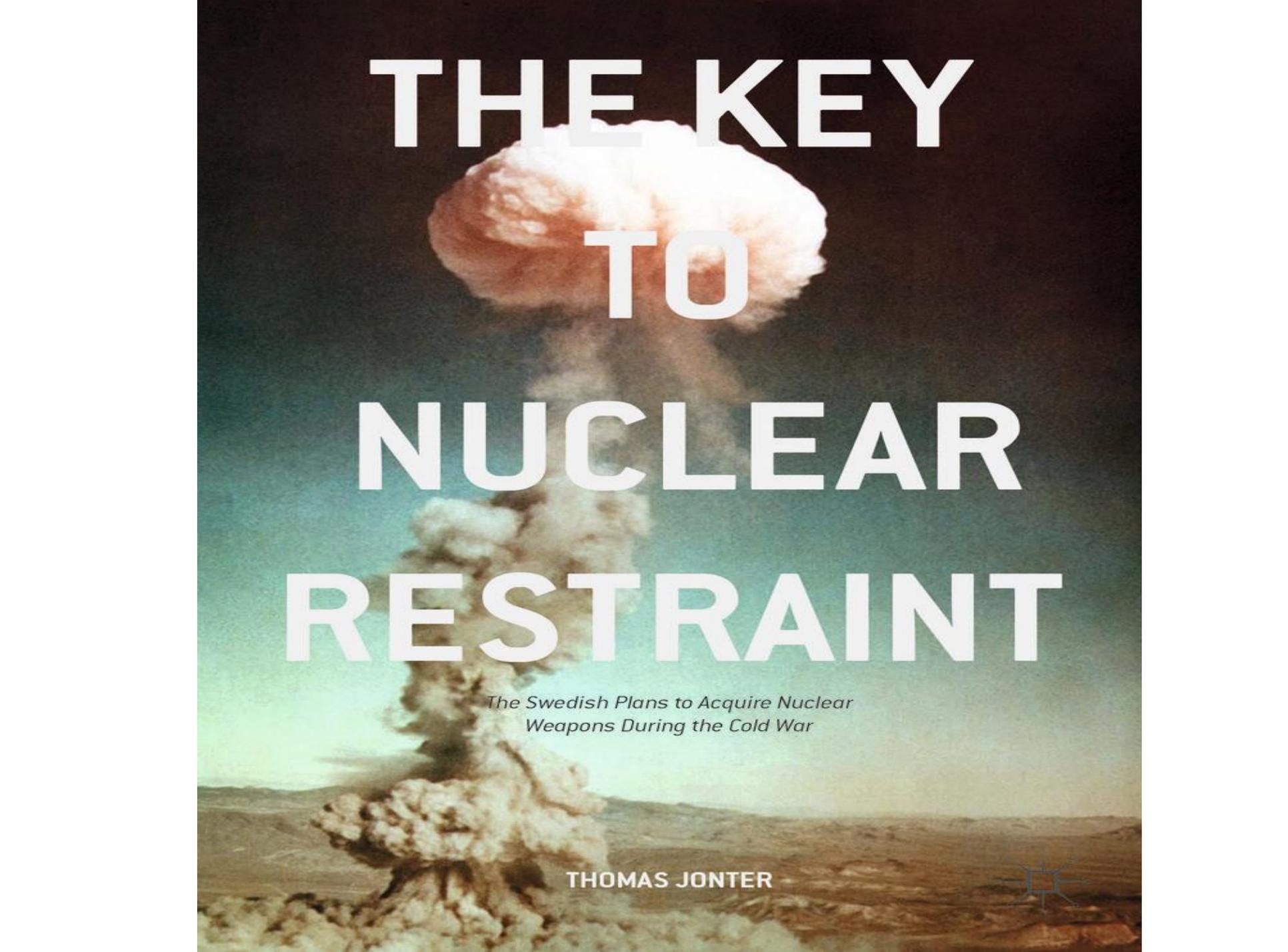


# Sweden and the Bomb: From Nuclear Acquisition to Nuclear Disarmament

Thomas Jonter, Department of Economic History and  
International Relations, Stockholm University

A large, detailed mushroom cloud from a nuclear explosion dominates the background. The cloud is white and grey, with a bright orange and yellow core at the top. The sky is a pale, hazy blue, and the ground below is a flat, brownish landscape. The title text is overlaid in large, white, sans-serif font.

# THE KEY TO NUCLEAR RESTRAINT

*The Swedish Plans to Acquire Nuclear  
Weapons During the Cold War*

THOMAS JONTER



“Canada, Communist China, Sweden, Switzerland, France have all given various indications the past year that they are on the way to the development of such weapons. ... Sweden has doubled its budget in this field during the fiscal year... There is no evidence, moreover, that nuclear bombs developed by such nations as Sweden or Switzerland will not be sold on the world market, just as guided missile and reactor for peaceful uses are sold commercially today. There is no evidence that a smaller and less developed nation could not secretly convert a reactor it receives for peaceful uses to make plutonium for use in a bomb”



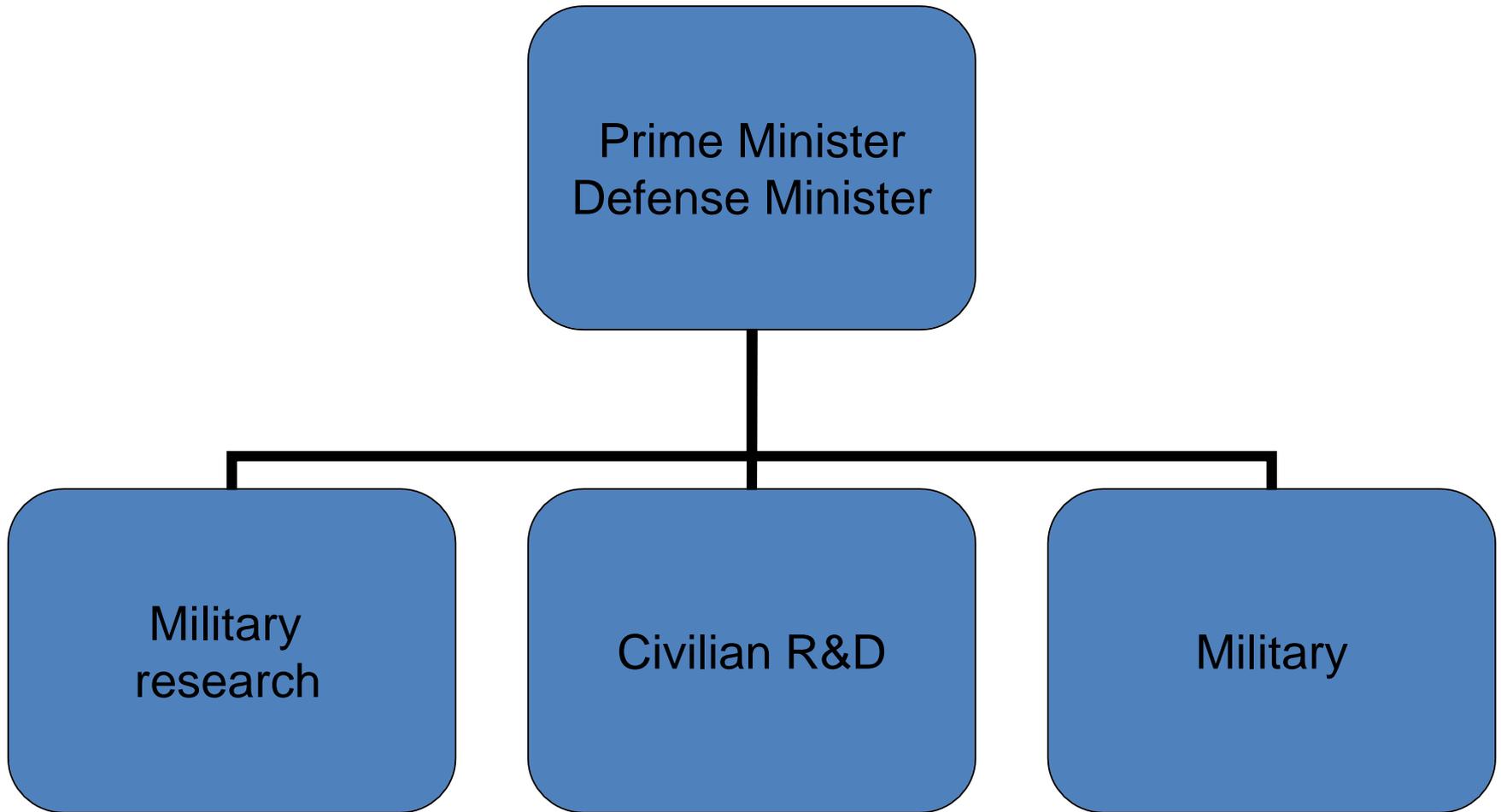
**Speech by John F. Kennedy in  
Portland, Ohio, August 1, 1959**

# Reasons for Initiating Nuclear Weapons Research

- The Swedish non-aligned policy
- Rich uranium resources in Sweden
- Technological and scientific know-how



# 1945-1957: Lobbying/close connections



# The Swedish Nuclear Weapons Research

- **The Swedish National Defence Research Agency (FOA)**
- Construction of the nuclear device and its effects
- Metallic Pu-research
- **AB Atomenergi (AE)**
- Production of U and procurement of heavy water
- Fuel element plant
- Reactors for Pu-production
- Reprocessing plant

# The emergence of the heavy water program “the Swedish line”

- Aims:
  - Self-sufficiency in the nuclear power field
  - To create a vital domestic industry in an important future energy sector
  - Military incentives: an eventual nuclear weapons manufacture

- Conflict between civilian and military goals
- Self-sufficiency policy turned out to be an unrealistic goal.
- Nuclear R & D became more and more a transnational affair: created dependence on foreign aid and assistance (United States)

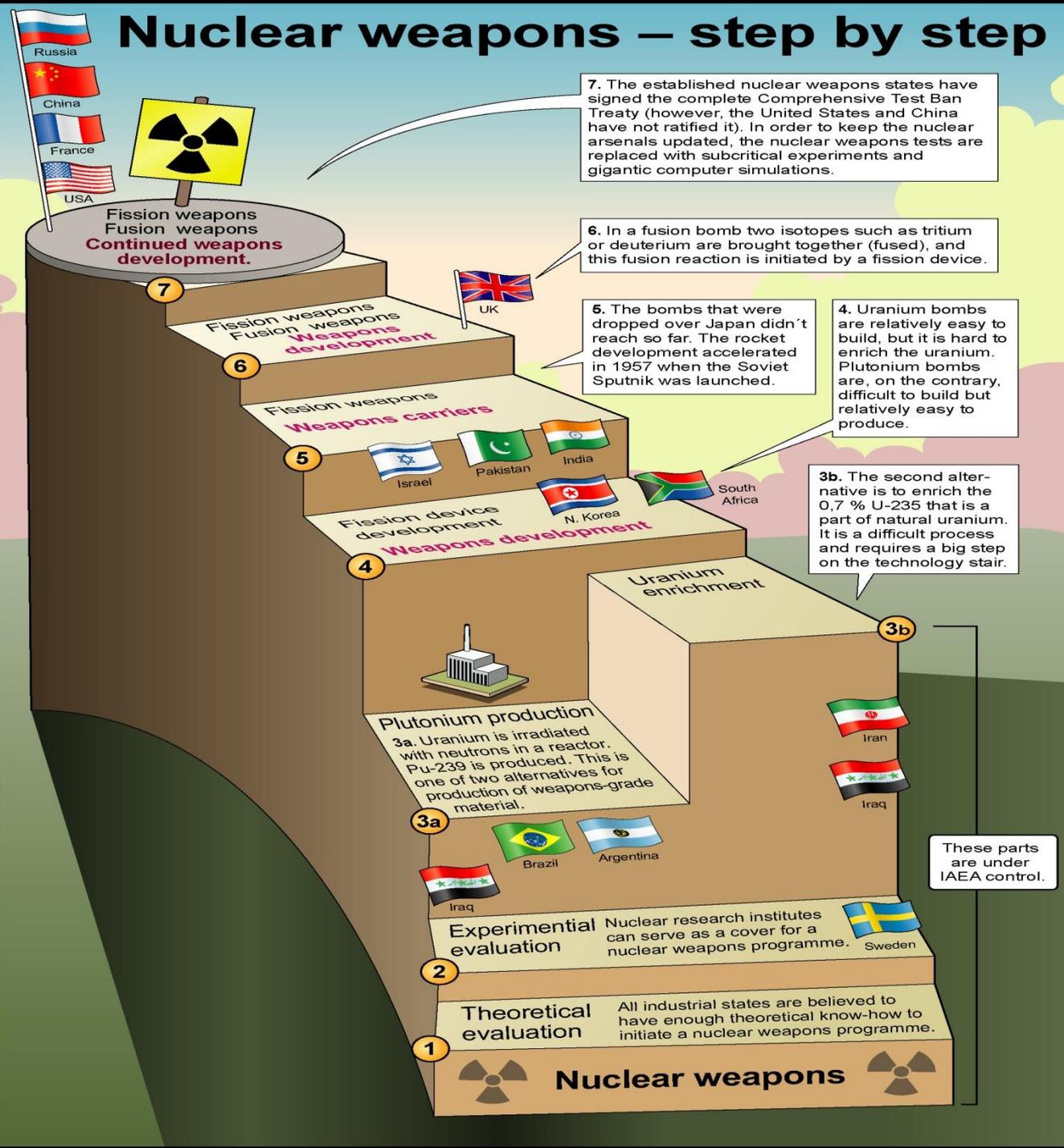
# The nuclear weapons program

- Five major studies (1948, 1953, 1955, 1957, 1965)
- 1955 Sweden reached *latent capability* (some say 1957)
- 100 tactical nuclear weapons, missiles equipped on attack aircraft *A 32 Lansen (Lans)* and *A 35 Draken (Dragon)*
- Two heavy water reactors for Pu-production were built (Ågesta and Marviken)
- Uranium production at Ranstad





# Nuclear weapons – step by step



7. The established nuclear weapons states have signed the complete Comprehensive Test Ban Treaty (however, the United States and China have not ratified it). In order to keep the nuclear arsenals updated, the nuclear weapons tests are replaced with subcritical experiments and gigantic computer simulations.

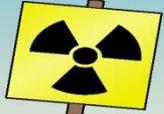
6. In a fusion bomb two isotopes such as tritium or deuterium are brought together (fused), and this fusion reaction is initiated by a fission device.

5. The bombs that were dropped over Japan didn't reach so far. The rocket development accelerated in 1957 when the Soviet Sputnik was launched.

4. Uranium bombs are relatively easy to build, but it is hard to enrich the uranium. Plutonium bombs are, on the contrary, difficult to build but relatively easy to produce.

3b. The second alternative is to enrich the 0,7 % U-235 that is a part of natural uranium. It is a difficult process and requires a big step on the technology stair.

These parts are under IAEA control.



**Nuclear weapons**

# Resistance against the nuclear weapons plans within the Social Democratic Party

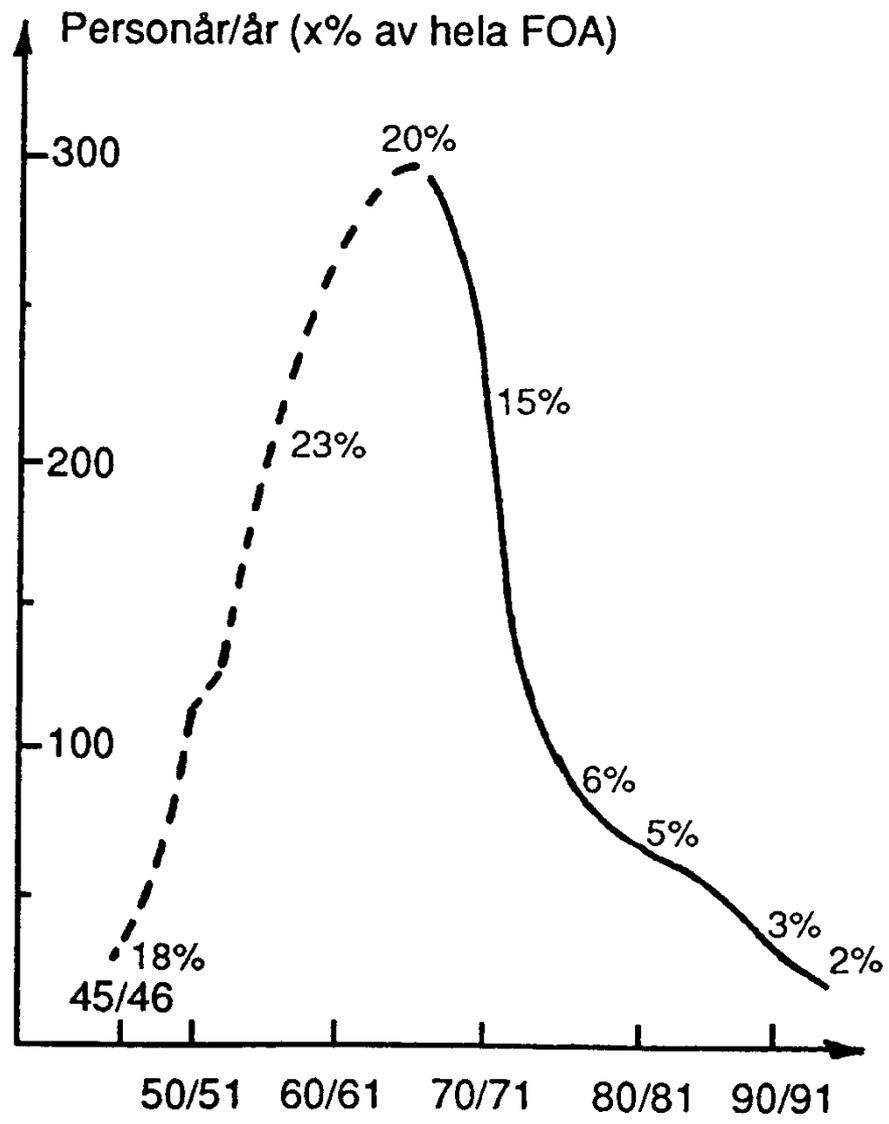


# 1958 Protection Research

- The Swedish Parliament: No nuclear device oriented research allowed.
- No production of information directly aimed at envisaged nuclear weapons manufacture.
- No estimation of costs for manufacturing of Nuclear weapons.



- The Social Democratic Party Atomic committee, November 1958
- Both proponents and opponents
- December 1959: Postponement + protection research has to be extended
- Comprromise among social democratic party, liberal party and the Centrist party



# The reasons why Sweden abstained from acquiring nuclear weapons

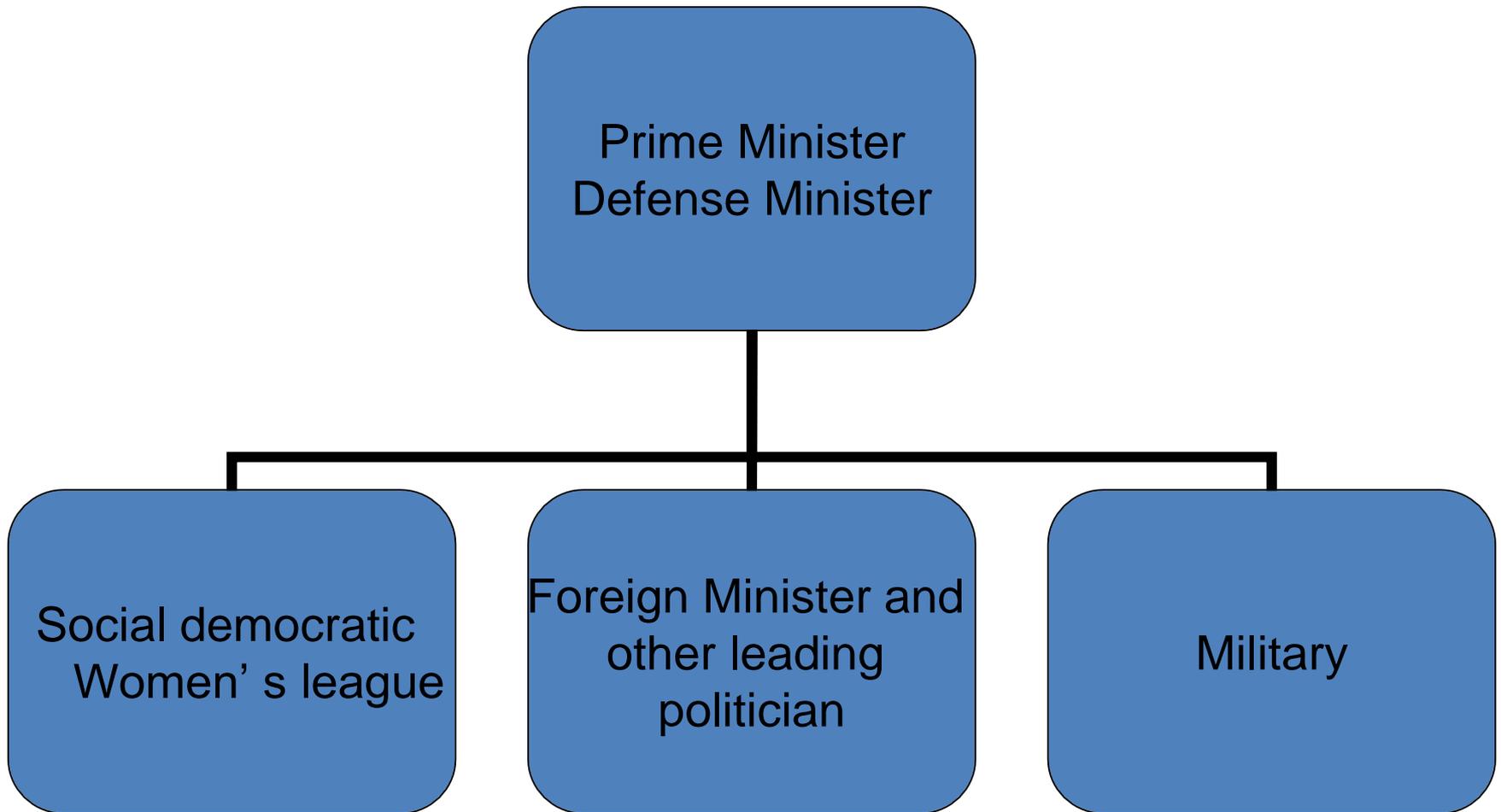
The decision to make the country's nuclear weapons production project a part of the civilian nuclear energy program, led to technical complications and delays

This decision influenced the nuclear weapons plans negatively in three ways:

# Resistance against the nuclear weapons plans

1. It made possible the mobilization of political opposition.
  - Leading politicians (and even the military) changed their minds

# 1958-1966: Lobbying/Close connections



# Nonproliferation norm

2. The disarmament talks between the US and USSR and the international nonproliferation efforts emerging from the mid-1950s influenced the decision-makers and strengthened the arguments against nuclear weapons (nonproliferation norm).

# US Policy toward the Swedish nuclear weapons program

3. Dependence on US nuclear technology and military assistance could be used by the American administration to steer the Swedes away from fulfilling its nuclear weapons plans.

# The US nuclear policy towards Sweden, 1960-1968

- Purchase of enriched uranium and heavy water from the US – restrictions
- Lowering of the prices of enriched uranium in the US – stimulated private industry to invest in light water technology
- Military cooperation: purchase of missiles etc – reduced the room for manoeuvring
- Informal security guarantee?

# US National Security Council report

US POLICY TOWARD SCANDINAVIA (DENMARK,  
NORWAY AND SWEDEN), 6 April 1960

“Provide no grant military assistance to Sweden. However, be prepared to sell to Sweden military materiel, and to provide training to Sweden on reimbursable basis. With due regard to NATO requirements, and provided that prior offer to NATO allies has been made, be prepared to sell to Sweden modern weapons systems from NATO or US production or to authorize licensing arrangements for manufacture in Sweden. **However, do not provide nuclear warheads; and discourage Sweden from producing its own nuclear weapons.**”

# Security guarantee

1960

“In the event of general war with Soviet Bloc (a) seek to prevent Sweden, as long as it remains neutral, from giving any assistance to the Soviet Bloc, and (b) encourage and assist Sweden, without prejudice to U. S. commitments to NATO to resist Soviet Bloc attack against Sweden. In the event of Soviet Bloc aggression against Sweden alone, **be prepared** to come to the assistance of Sweden as a part of NATO or UN response to the aggression.”

1962

“In the event of Soviet Bloc aggression against Sweden alone, we **should** undertake to come to the assistance of Sweden as a part of NATO or UN response to the aggression.”

Where these informal assurances decisive for Sweden to abandon its nuclear weapons plans?

**The answer is negative.**

The political elite had already gradually moved to a no to nuclear weapons.

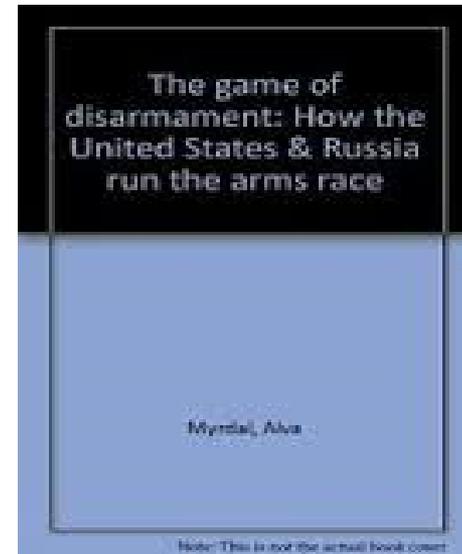
However, the informal assurances had as a consequence that the Swedish military officials shelved the nuclear weapons plans

# Nuclear reversal

- Supreme Commander Nils Swedlund resigns 1961
- Prime Minister Erlander confesses that he changed his mind
- Undén Plan 1961

# Nuclear reversal/the emergence of the Swedish disarmament policy

- 1962 Sweden member of the Eighteen Nations Disarmament Committee (Alva Myrdal)

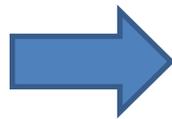


- The Undén Plan
- Partial Test Ban Treaty
- NPT (Article 6)

# Changed Swedish defense doctrine

The concept security and the role of nuclear weapons underwent a transformation from deterrence to détente.

Deterrence and  
Nuclear weapons



Disarmament and  
creations of inter-  
national legal  
framework

# NPT

## Article VI

**“Each of the Parties to the Treaty undertakes 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.”**

# Swedish disarmament policy



# Scott Sagan model

1. Security model
2. Domestic model
3. Norms model

# Scott D. Sagan, The Causes of Nuclear Weapons Proliferation, 2011

- Supply-side explanation - **yes**
- Demand-side explanation – **yes**

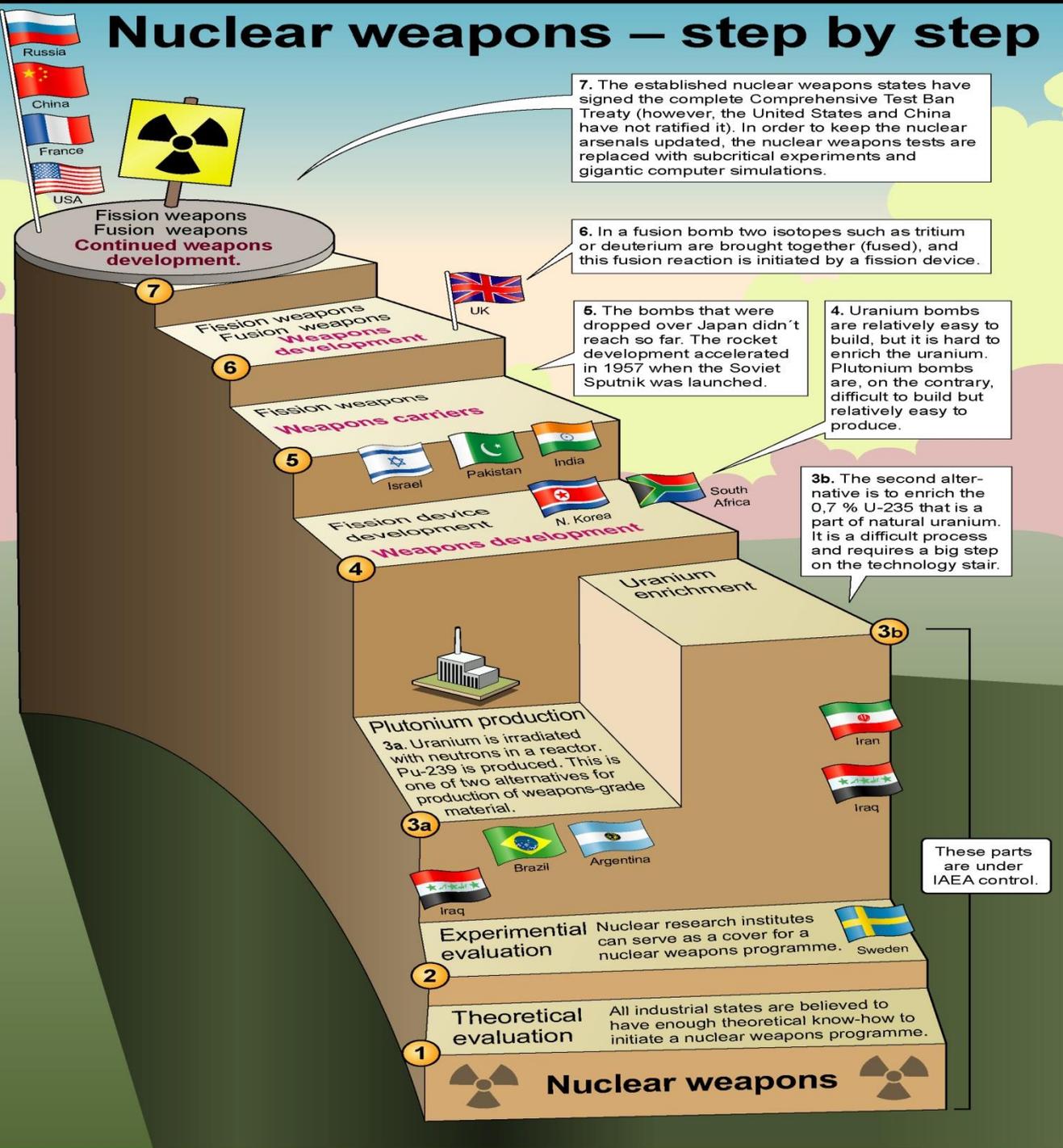
# Implications

- More studies including both supply-side and demand-side approaches needed: decision-making and nuclear weapons research seem to be more intermixed with each other than previous research has shown
- More primary source based studies

# Implications

- More studies on how civilian nuclear power developments might influence proliferation
- More research on the connection between the NPT and norms needed

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The End