



Elements of a Fissile Material Cut-off Treaty

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Recent developments

- 2017-2018: High Level Expert Preparatory Group
- 2015: Draft treaty submitted by France
- 2014-2015: Work of the Group of Governmental Experts
 - Views submitted by States
 - GGE deliberations and final report
- Earlier drafts (International Panel on Fissile Materials and others), expert discussions



Dynamic inter-relationship

- Definitions
- Verification
- Scope



Definitions of fissile material

Fissile material	Article XX of the IAEA Statute	All enriched uranium (including LEU) All plutonium (separated or in spent fuel)
	Unirradiated direct use material	Highly enriched uranium (>20% U-235 or U-233) All separated plutonium
	Weapon-grade material	Weapon-grade HEU (>90% U-235) Separated weapon-grade plutonium
	Intermediate-grade material	Excludes naval HEU (up to ~60% U-235) Excludes reactor-grade plutonium
	Other definitions	May include Np, Am



Ban on production of fissile material for weapons

- Fissile material that is produced (or acquired from any source) should be declared and submitted to verification
- Verification system is designed to ensure that
 - Submitted material is not used for nuclear weapons
 - Once submitted, material cannot be withdrawn
 - No material is produced that is not submitted to verification



Components of the verification system

- Verification at production facilities
 - All produced material is declared and submitted to verification
- Downstream verification
 - Fissile material is not withdrawn or diverted
 - Fissile material is not used for weapon purposes
- Detection of undeclared production
 - No covert production facilities



Production and production facilities

- Production is any activity or process that produces fissile materials
 - Specific definition depends on the definition of fissile material
- Production facility is any facility that is capable of producing fissile materials
 - “Capable of producing” vs. “configured to produce” or “licensed to produce”



Verification at production facilities

- Procedures would have to be facility-specific
- Initial declaration should include all “capable” facilities
 - Should the declaration include former production facilities?
- Implementing organization decides on specific verification measures
 - Some facilities may be exempt (laboratory-scale, converted, shut down, dismantled etc.)



Downstream verification

- Irreversibility
 - Once submitted, material cannot be withdrawn
- Material cannot be used for weapon purposes
- Non-proscribed military uses may require a special arrangement
 - Military naval reactors, military research reactors
 - Article 14 of the INFCIRC/153 may or may not be a good model
- Transfers to other states



Detection of undeclared production

- Undeclared production at declared production facilities
 - Should be prevented by facility-specific verification measures
 - May require “upstream” verification arrangements (similar to additional protocol)
- Production at undeclared facilities
 - May require non-routine inspections and other measures



Existing stocks

- FMCT would create a system for handling existing materials
- Any existing material can be submitted to verification
 - Material voluntarily declared excess
 - "Disarmament material"



Conclusions

- There is a broad agreement on the key elements of the FCMT, even though differences remain
- FMCT can be an essential element of nuclear disarmament whether or not it mandates elimination of fissile materials