

# **Prospects of nuclear proliferation, or of transition to a nuclear-weapon-free world**

**F. Calogero**

Physics Department, University of Roma "La Sapienza"  
Istituto Nazionale di Fisica Nucleare, Sezione di Roma

## **Outline of talking points**

# The world-wide nuclear-weapon non-proliferation regime

## The Non Proliferation Treaty (NPT)

Entry into force: 1970

Three “pillars”:

- Non Proliferation (of nuclear-weapon capabilities),
- Nuclear disarmament,
- Universal right to develop nuclear energy for peaceful purposes

NPT Nuclear-Weapon-States (NWS):

USA, Russia, UK, France, China

(demonstrated a nuclear-weapon capability before January 1, 1967)

NPT Non-Nuclear-Weapon-States (NNWS): all others

Parties: now all States except India, Israel, Pakistan and North Korea.

Every 5 years a Review Conference:

the next-to-last (May 2005) ended in disarray;

the last one (May 2010) ended with a unanimous agreement, including the principle of pursuing a

“Nuclear-Weapon-Free World” (NWFW)

The world-wide nuclear-weapon nonproliferation regime has another important component: Nuclear-Weapon-Free Zones (NWFZ). They now cover more than half of the globe.

The collapse of the world-wide regime of nuclear-weapon non-proliferation might happen in two ways:

- Proliferation by States;
- Acquisition by sub-state (terrorist) groups of the capability to engineer a nuclear explosion

In the long run, the alternative is clear:

- either widespread nuclear-weapon proliferation leading to the use of nuclear weapons and/or nuclear terrorism, with the prospect of major catastrophes, an end of our civilization, possibly the termination of *homo sapiens*;
- or the eventual establishment of a stable Nuclear-Weapon-Free World

Presumably the time scale of these developments is measured in decades rather than centuries

# **The risk of nuclear-weapon proliferation by States, and eventually their use “in anger”**

## Critical areas:

- The extended Middle East;
- South-Asia (the India-Pakistan conflict over the status of Kashmir);
- East Asia (the two Koreas; Japan,...);
- the rest of the world (Brazil, Argentina; Venezuela; Indonesia;...)

## **The risk of nuclear terrorism: the possibility that sub-state group acquire the capability to engineer a nuclear explosion**

- The explosion of a primitive (“Hiroshima type”) nuclear device in a city would be a sudden catastrophe much much worse than any tragic event in human history
- There exist terroristic groups who would cause such a disaster if they could
- A primitive nuclear explosive device could be easily manufactured clandestinely in a target city by a small terrorist commando if they could get hold of a sufficient quantity of weapon-grade Highly Enriched Uranium (HEU)
- ONE HUNDRED kilograms would be more than enough
- As a consequence of the enormous accumulation of weapon-grade HEU during the Cold War---and in spite of a significant elimination of this material during the last one-two decades, by downblending it to Low Enriched Uranium then used in nuclear reactors to produce electrical energy---there still are approximately ONE MILLION kilograms of HEU; most of it in Russia, enormous quantities also in the USA, and smaller quantities (but still significantly larger than 100 kilograms) in several other countries. This material is *not* available for sale and is *in principle* well-protected; but not necessarily all of it *in real practice* (although the situation has improved over the last years, especially in Russia, both due to the improvement of the economic situation there, and thanks to outside collaborative interventions, mainly by the USA).

I consider still quite immanent the risk that a city be destroyed by a nuclear explosion engineered by a terroristic commando. Hence I believe that more of an effort should be made to protect all the existing HEU, to terminate all its civilian employments---by converting all research and naval reactors still employing HEU to using instead the compact LEU now available---and especially to eliminate (by downblending) ***as much HEU as possible as quickly as possible***. The most important step in this direction will hopefully be an extension---hopefully envisaging a fastest pace---of the HEU deal among the USA and Russia that will be soon completed (in 2013) after having eliminated 500 tons (HALF A MILLION kilograms) HEU over 20 years.

# The prospect of transition to a Nuclear-Weapon-Free World

The Norwegian Nobel Committee has decided to award the Nobel Peace Prize for 1995, in two equal parts, to **Joseph Rotblat** and to the **Pugwash Conferences on Science and World Affairs**, for their efforts to diminish the part played by nuclear arms in international politics and in the longer run to eliminate such arms.

## From desirable utopia to political reality

January 2007: the “coming out” in favor of the transition to a NWFW of 4 eminent American statesmen (former “cold-warriors”): George Shultz, Bob Perry, Henry Kissinger, Sam Nunn

The avalanche effect in the USA and the rest of the world

The Prague speech by President Obama (5 April 2009)

### QUOTE

*Today, the Cold War has disappeared but thousands of those weapons have not. In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up. More nations have acquired these weapons. Testing has continued. Black market trade in nuclear secrets and nuclear materials abound. The technology to build*

*a bomb has spread. Terrorists are determined to buy, build or steal one. Our efforts to contain these dangers are centered on a global non-proliferation regime, but as more people and nations break the rules, we could reach the point where the center cannot hold.*

*Now, understand, this matters to people everywhere. One nuclear weapon exploded in one city -- be it New York or Moscow, Islamabad or Mumbai, Tokyo or Tel Aviv, Paris or Prague -- could kill hundreds of thousands of people. And no matter where it happens, there is no end to what the consequences might be -- for our global safety, our security, our society, our economy, to our ultimate survival.*

*Some argue that the spread of these weapons cannot be stopped, cannot be checked -- that we are destined to live in a world where more nations and more people possess the ultimate tools of destruction. Such fatalism is a deadly adversary, for if we believe that the spread of nuclear weapons is inevitable, then in some way we are admitting to ourselves that the use of nuclear weapons is inevitable.*

*Just as we stood for freedom in the 20th century, we must stand together for the right of people everywhere to live free from fear in the 21st century. (Applause.) And as a nuclear power -- as the only nuclear power to have used a nuclear weapon -- the United States has a moral responsibility to act. We cannot succeed in this endeavor alone, but we can lead it, we can start it.*



*So today, I state clearly and with conviction America's commitment to seek the peace and security of a world without nuclear weapons. (Applause.) I'm not naive. This goal will not be reached quickly -- perhaps not in my lifetime. It will take patience and persistence. But now we, too, must ignore the voices who tell us that the world cannot change. We have to insist, "Yes, we can."  
(Applause.)*

UNQUOTE

## Recent positive developments

The NEW START Agreement among USA and Russia (resuming verified nuclear arms control sanctioned by Treaties, envisaging some reductions of the arsenals of the two nuclear Superpowers; signed in April 2010, but still not ratified)

May 2010: significant progress in transparency (by the USA): complete disclosure of the USA nuclear arsenal, and of the new Nuclear Posture Review (restricting the circumstances of possible employment of nuclear weapons, stating that the **fundamental** role of nuclear weapons is to **deter** an attack performed **with nuclear weapons**)

May 2010: the Quinquennial NPT Review Conference ends with a unanimous statement (the previous one--- May 2005---had ended in disarray, in my opinion largely because of the arrogant attitude of the Bush Administration: while the Non-Nuclear-Weapon States were severely requested not to proliferate, no progress in nuclear disarmament by the Nuclear-Weapon-States was envisaged)

## **Recent hopeful development** (possibly indicating the wishful thinking of the speaker)

Improvement of USA-Russia relations

Possible postponement of the decision by the new (conservative-liberal) UK government to develop a new generation of Trident submarines (the British nuclear-weapon carriers)

New Strategic Concept of NATO, with a commitment to being more open to collaborating with Russia and an alignment to the USA attitude to restrict the role of nuclear weaponry and to pursue the goal of a nuclear-weapon-free world

Strong commitment by several governments world-wide (including key States such as Germany and Japan), and of course of the United Nations, to progress towards a Nuclear-Weapon-Free World

Creation of a *European Leadership Network for Multilateral Nuclear Disarmament and Non-Proliferation (ELN)*, mainly composed of eminent politicians committed to work towards a Nuclear-Weapon-Free World (see:

[www/toplevelgroup.org/2010/09/29/europeangroupstatement](http://www/toplevelgroup.org/2010/09/29/europeangroupstatement))

# European Group Statement on NATO Nuclear Weapons

Press release, posted on September 29, 2010

Today a group of 36 senior European politicians, military figures and diplomats have jointly signed a statement calling for urgent changes to NATO nuclear policy in the run up to the Lisbon Summit and for fresh attempts to engage Russia on a range of security issues from non-strategic (or “tactical”) nuclear weapons to ballistic missile defence.

The Group asks NATO to use the development of a new Strategic Concept, a draft of which is expected to be circulated to member governments by the NATO Secretary General within days, to support President Obama’s drive for multilateral nuclear disarmament and to show NATO leadership on the nuclear agenda.

In particular it calls for:

- A further reduction and consolidation of the 200 U.S. non-strategic nuclear weapons stationed in Europe;
- A change to NATO declaratory policy to make it clear that the fundamental purpose of NATO's nuclear weapons is only to deter nuclear attack and not to deter a wider range of non-nuclear threats;
- NATO engagement with Russia on the verifiable reduction and consolidation of non-strategic nuclear weapons across the whole of Europe;
- The retention and updating of the Conventional Forces in Europe (CFE) Treaty and for NATO to work for Russia's return to this treaty regime;
- Use of the NATO-Russia Council to support the search for binding agreements on the future of ballistic missile defense.

The statement also challenges the alliance to conduct a full and inclusive review of NATO nuclear policy in 2011 and to use that review to show leadership on nuclear disarmament and non-proliferation while finding new ways to operationalize core NATO concepts like burden-sharing, solidarity and the transatlantic link.

The statement provides added momentum to the debate on the future of NATO in the run up to November's Lisbon Summit. A copy of the full statement can be found at:

[www.europeanleadershipnetwork.org](http://www.europeanleadershipnetwork.org).

# **Group Statement on NATO Nuclear Policy**

27 September 2010

*The following statement on NATO Nuclear Policy has been issued by a group of 36 members of the ELN*

## **Part I: A New Context for NATO Nuclear Policy**

1. In a world that has changed profoundly and will continue to do so, NATO is working on a new strategic concept. As former leaders in member countries, we believe that our alliance, building on its best traditions, can now be an even stronger force for security.

Nuclear policy and the relationship with Russia are cases in point.

Today, proliferation risks and nuclear dangers come in many forms, not only from major nuclear powers. This makes it imperative to strengthen the global consensus on non-proliferation.

At the same time, legitimate nuclear powers must meet their treaty obligation of working in good faith towards “general and complete disarmament”.

In the best interest of security, President Barack Obama has set the course towards a world free of nuclear weapons. This has found broad support in Europe, in Russia, in the Group of Eight and at the historic meeting of the Security Council of the United Nations attended by heads of state and government.

The United States and Russia have concluded a new treaty on reductions of strategic weapons that awaits ratification. The United States has constrained the role it gives to its nuclear weapons in its Nuclear Posture Review.

Using this momentum, NATO should make disarmament a core element of its approach to providing security.

This alliance, building on the Harmel report, has always combined deterrence with détente.

And after the end of the cold war, NATO dismantled thousands of nuclear weapons, adapting its force posture to new realities and requirements.

## **Part II: Changes Required at Lisbon**

**2.** In this context, it is our firm view that at the Lisbon summit on 19 to 20 November 2010 NATO Leaders should include text in the new strategic concept that states the following:

- NATO will promote both nuclear and conventional arms control and disarmament based on greater international transparency and accountability.
- There is an urgent need for reducing the roles and risks of nuclear weapons in security policies globally. NATO is prepared to make a significant contribution to that process.
- The fundamental role of nuclear weapons is to deter nuclear attack.

- Non-strategic nuclear weapons have lost their original role of deterring massive conventional superiority. Therefore, NATO is willing to support a further reduction and consolidation of U.S. non-strategic nuclear weapons in Europe.
- NATO intends to engage Russia in a process strengthening all-European security from Vancouver to Vladivostok. This should include further dialogue on:
  - a much wider and verifiable reduction and consolidation of non-strategic nuclear weapons across the whole of Europe, leading to their eventual elimination;
  - the retention and updating of the CFE treaty and Russia's return to this treaty regime;
  - A constructive role for the NATO-Russia Council to support and work towards binding agreements on the role of missile defense in Europe.

**3.** In addition, we call upon the Alliance to now review its entire nuclear policy and posture with a view to facilitating progress in arms control, in a manner consistent with effective burden sharing and alliance cohesion, effective deterrence and a demonstrable commitment to collective defence.

### **Part III: Why This Outcome is Necessary**

**4.** We believe this change is necessary because events have moved beyond the position agreed by NATO in 1999. Paragraph 62 of the Strategic Concept



agreed that year states that the 'fundamental purpose of the nuclear forces of the Allies is political: to preserve peace and prevent coercion and any kind of war' and that nuclear forces will 'continue to fulfill an essential role by ensuring uncertainty in the mind of any aggressor about the nature of the Allies' response to military aggression.' Paragraph 63 of the same document states that 'nuclear forces based in Europe and committed to NATO provide an essential political and military link between the European and the North American members of the Alliance' and that these forces need to have the necessary characteristics to be perceived as 'a credible and effective element of the Allies' strategy in preventing war.'

**5.** However, since then, we observe that:

1. The nuclear threat has evolved. It is no longer Russia specific but relates to wider proliferation risks, both to other states and to terrorist groups. This has led many experienced international statesmen and women to question the likely safety and stability of long-term reliance on nuclear deterrence for our security and to call for urgent nuclear threat reduction steps leading to the eradication, through multilateral agreement, of nuclear weapons altogether;
2. The diplomatic atmosphere on nuclear issues has improved. With President Obama's speech in Prague on 5 April 2009 and his statement of commitment to the goal of a world without nuclear

weapons, and with UN Security Council Resolution 1887 of 24 September 2009, there is broad international support for this objective. After a gap of almost a decade, the United States and Russia have resumed strategic arms control negotiations, signing the New START Treaty in Prague in April. A successful, if precarious, outcome was also achieved at the NPT Review Conference in May. There is an opportunity and obligation for the international community to build further on these achievements;

3. Under President Obama's leadership the United States has conducted a Nuclear Posture Review, a process which resulted in a commitment by the US 'not to use or threaten to use nuclear weapons against non-nuclear weapons states that are party to the NPT and in compliance with their nuclear non-proliferation obligations.' There appears to be some discrepancy between the new US position and the position agreed by NATO in 1999, to use nuclear forces to 'ensure uncertainty in the mind of any aggressor about the nature of the Allies' response to military aggression.' This discrepancy extends to the different declaratory policies of the UK and France, and needs to be addressed;
4. The internal political dynamics of NATO, as they relate to nuclear policy, have changed. The foreign ministers of several countries have called for a fuller debate on the future of US sub-strategic nuclear weapons stationed in Europe. In some member countries of the alliance political

- momentum has swung behind a desire to see these weapons removed, and there are increasing question marks over the decision of some European governments to replace the ageing dual capable aircraft upon which these weapons rely;
5. The military utility of the same weapons is increasingly being questioned, and so too, as a result, is their deterrence value and credibility in the eyes of any potential aggressor;
  6. NATO itself has also expanded considerably since the last strategic concept document was agreed and this means there are countries inside the alliance today that had no part in agreeing the alliance's nuclear policy or operational posture.

**6.** The implications of all this for NATO are clear. The Allies cannot and should not avoid a re-examination of the 1999 policy formulation and what it means in practice. The core ideas of deterrence, alliance solidarity, burden sharing, and the transatlantic link remain central to our security but the question before the Alliance is how best to implement them in the changed circumstances we face today. In particular, how best to implement them in ways which simultaneously sustain alliance cohesion by providing reassurance to all members of the alliance, but also increase NATO's contribution to global momentum on multilateral nuclear disarmament and non proliferation, and enhance the prospects of further fruitful arms control dialogue with Russia.

## **Framing a Forward Review of NATO Nuclear Policy:**

7. Consequently, we believe a full, inclusive and transparent review of NATO nuclear policy is not only necessary but should address the following questions as a matter of urgent priority:

1. What can NATO do to help establish safe conditions for the adoption of deterring nuclear attack as the sole purpose for its nuclear weapons, consistent with the declaratory policy goal as stated in the US NPR and with our suggested ambition to reduce the number and roles of nuclear weapons in the NATO arsenal?
2. Are NATO's current nuclear arrangements the only available and credible option for providing European allies with reassurance against nuclear threats? What alternative options are available that could provide this reassurance while also allowing NATO to do more to support international moves toward multilateral nuclear disarmament? What might the risks and benefits of each of these alternatives be?
3. What alternatives to current nuclear burden-sharing arrangements might be available, if any, that could both maintain the political cohesion of the alliance and maintain the principle that nuclear risks and burdens are shared across the alliance?
4. How can NATO best maximise the security of nuclear weapons on its own territory?

5. What would the implications of any changes to NATO nuclear policy be for NATO relations with Russia, approaches to reassurance on Article V commitments within the alliance, and consideration of issues such as missile defence and conventional forces in Europe?

8. These are important questions. They go to the heart of NATO's approach to delivering its own security, its longer-term political cohesion in changing conditions, and the stability of its relationship with Russia. The challenge for NATO is now to simultaneously maintain its own cohesion while moving to strengthen the global non-proliferation regime and further reduce urgent nuclear dangers. The alliance has a responsibility to show more leadership on the nuclear challenges of the 21st century. Our proposals are one way it can do so.

**Signed:**

1 - Michael Ancram

Former Shadow Foreign Secretary and Defence Secretary in the United Kingdom

2 - Egon Bahr

Former Federal Minister for Special Affairs of German

3 - Margaret Beckett

Former Foreign Secretary for the United Kingdom

4 - Kjell Magne Bondevik

Former Prime Minister of Norway

5 - Laurens Jan Brinkhorst

Former Deputy Prime Minister of the Netherlands

6 - Hans van den Broek

Former Minister of Foreign Affairs of the Netherlands and former European Commissioner for Foreign Relations

7 - Des Browne

Former Defence Secretary of the United Kingdom

8 - Francesco Calogero

Former Secretary General (1989-1997) of Pugwash Conferences (1995 Nobel Peace Prize)

9 - Menzies Campbell

Former Leader of the Liberal Democrats in the United Kingdom

10 - Willy Claes

Former Minister of Foreign Affairs of Belgium

11 - Uffe Ellemann-Jensen

Former Minister for Foreign Affairs of Denmark

12 - Jacques Delors

Former President of the European Commission

13 - Hans Dietrich Genscher

Former Foreign Minister and Vice Chancellor of Germany

14 - Juraj Horvath

Former Chairman of the Foreign Affairs Committee of the Slovak Parliament

15 - Wolfgang Ischinger

Chairman of the Munich Security Conference

16 - Jan Kavan

Former Foreign Minister, former Deputy Prime Minister of the Czech Republic

17 - Tom King

Former Secretary of State for Defence of the  
United Kingdom

18 - Vladimir Lastuvka

Former Chairman of the Foreign Affairs committee  
of the Czech Parliament

19 - Ruud Lubbers

Former Prime Minister of the Netherlands

20 - Mogens Lykketoft

Former Minister for Foreign Affairs of Denmark

21 - Giorgio La Malfa

Former Minister for European Affairs of Italy

22 - Federica Mogherini

Member of Parliament in Italy

23 - Klaus Naumann

General (ret), former Chairman of the NATO  
Military Committee and former Chief of Defence  
Germany, Commissioner in the International  
Commission on Nuclear Non Proliferation and  
Disarmament

24 - Odvar Nordli

Former Prime Minister to Norway

25 - Bernard Norlain

General (ret), former commander of the French  
Tactical Air Force and military counselor to the  
Prime Minister of France

26 - David Owen

Former Foreign Secretary of the United Kingdom

27 - Niels Helveg Petersen

Former Minister for Foreign Affairs of Denmark

28 - Malcolm Rifkind

Former Defence Secretary and Foreign Secretary  
of the United Kingdom

29 - Volker Rühle

Former Defence Minister of Germany

30 - Jaroslav Šabata

Former Minister in the Czech government and  
chairman of the Foreign Affairs committee of the  
Czech Parliament

31 - Helmut Schmidt

Former Chancellor of Germany

32 - Ivo Slaus

Former Member of Parliament of Croatia

33 - Thorvald Stoltenberg

Former Foreign Minister of Norway

34 - Richard von Weizsäcker

Former President of Germany

35 - Kåre Willoch

former Prime Minister of Norway

36 - Shirley Williams

Former Leader of the Liberal Democrats in the  
House of Lords and former Adviser on Nuclear  
Proliferation to Prime Minister Gordon Brown in  
the United Kingdom



November 29, 2010

## **From 16 Leading Britons, a Plea for the Arms Treaty**

To the Editor:

As a nuclear weapon state and a major contributor of military capability to the North Atlantic Treaty Organization, the United Kingdom in this context occupies a special role in the collective security of Europe and its allies, particularly in bearing our share of the burden of nuclear weapons.

We write as a group of members of Parliament that includes a majority of Labour and Conservative politicians who have held senior ministerial responsibility for defense and foreign affairs for the last two decades and more. We are augmented by former chiefs of defense and elder statesmen from the third senior party of British politics, the Liberal Democrats, which recently joined with the Conservatives to form our current coalition government.

As clearly stated by NATO leaders at their summit meeting in Lisbon, the security of the United Kingdom and the security of its allies, including the United States, depends on reducing the threat from nuclear weapons, ballistic defenses and improving our relationship with Russia.

At Lisbon, we made progress on all three fronts. We committed ourselves to creating the conditions for a

world free of nuclear weapons; for the first time reached agreement to develop collective ballistic missile defense; and actively involved Russia in both processes. President Dmitri A. Medvedev's positive response gives us encouragement that we can continue on this journey together.

The New Start treaty, agreed on between Presidents Medvedev and Obama, was a forerunner of the multilateral consensus that emerged in Lisbon. The foreign ministers of Bulgaria, Denmark, Hungary, Latvia, Lithuania and Norway — some of the states with the most reason to be wary of Russia — spoke for Europe when they expressed their support for the treaty. They articulated our view that it is crucial for world security.

At the same time as we call for ratification, we back strong missile defense and seek an assured and transparent relationship with Russia about nuclear weapons.

The overwhelming consensus of opinion across the diversity of Europe, but held strongly here in the United Kingdom, is that ratification of the treaty and our collective security are not mutually exclusive, but mutually essential.

Europe owes much to American leadership, and it is in the nature of the New Start treaty that we must look to American leadership again. But through NATO and at Lisbon, Europe delivered its own view to the United

States: If the Senate ratifies New Start, it does so not only with strong United Kingdom support, but also with the support of the entire alliance.

Bob Ainsworth (defense secretary, 2009-10)

James Arbuthnot (chairman of the U.K. Defense Select Committee in Parliament)

Margaret Beckett (foreign secretary, 2006-7)

Admiral the Lord Michael Boyce (chief of the defense staff, 2001-3)

Field Marshal the Lord Bramall (chief of the general staff, 1979-82; chief of the defense staff, 1982-85)

Lord Des Browne of Ladyton (defense secretary, 2006-8) (convener of group)

Sir Menzies Campbell (former leader, Liberal Democrat Party; shadow foreign secretary, 2001-6)

Lord Peter Carrington (First Lord of the Admiralty, 1959-63; defense secretary, 1970-74; foreign secretary, 1979-82; NATO secretary general, 1984-88)

General the Lord Charles Guthrie of Craigiebank (chief of the defense staff, 1997-2001)

Lord Geoffrey Howe of Aberavon (chancellor of the exchequer, 1979-83; foreign secretary, 1983-89; and deputy prime minister, 1989-1990)

Lord Tom King of Bridgwater (defense secretary, 1989-92)

Lord David Owen (foreign secretary, 1977-79)

General the Lord David Ramsbotham (commander, U.K. Field Army, and inspector general, Territorial Army, 1987-90; adjutant general to the forces, 1990-93)

Sir Malcolm Rifkind (defense secretary, 1992-95; foreign secretary, 1995-97)

Lord George Robertson of Port Ellen (defense secretary, 1997-99; secretary general of NATO, 1999-2003)

Baroness Shirley Williams of Crosby (former leader of the Liberal Democrats in the Lords)

London, Nov. 29, 2010

*Editors' Note: This letter includes a new final paragraph that was erroneously omitted in transmission from London.*