Time is UP!

Bring Reason to Bear For a Nuclear-Weapon-Free World
The ongoing nuclear threat

The urgency to strive for a nuclear-weapon-free world has attracted renewed interest, most prominently in response to President Barack Obama’s Prague speech in April 2009 which declared a world without nuclear weapons as an objective of U.S. policy. This initiative encourages all activities aiming at a nuclear-weapon-free world. It also points to an aspect in world politics which, twenty years after the end of the Cold War, many people don’t know or have forgotten that the world continues to stand on the brink of nuclear devastation. Thousands of nuclear warheads are still on hair-trigger alert ready to strike any spot on Earth within minutes. The only relevant multilateral agreement to curb nuclear proliferation, the Nuclear Non-Proliferation Treaty (NPT), is under extreme pressure. The deal struck in the Treaty – the acknowledged five nuclear weapon states (United States of America, the Russian Federation, the United Kingdom, France, and China) enter into good faith negotiations on the complete elimination of their nuclear arsenals while the non-nuclear weapon states undertake not to acquire them – created a fragile and asymmetrical division into nuclear “haves” and “have-nots.” Four decades after the entry into force of the NPT, this system is on the verge of collapse. The nuclear weapon states, which are also the permanent members of the UN Security Council, continue to modernize their arsenals of nuclear warheads and delivery vehicles. Three countries who never acceded to the treaty – India, Israel, and Pakistan – joined the “nuclear club” outside the NPT. North Korea withdrew from the Treaty and tested nuclear weapons in 2006 and 2009.

At the end of 2009, the stockpile of nuclear weapons contained more than 23,300 warheads, 8,500 of them operational (equivalent to about 150,000 Hiroshima bombs). The rest serves as a “nuclear reserve” which could be reintroduced to the active arsenals at any time. The nuclear weapon states have not fulfilled their disarmament promises, and there is no real move down to zero nuclear weapons. Instead they have developed new or improved nuclear weapon systems. Some nuclear

FOUNDING STATEMENT

“Scientists and engineers were among those who created the vast nuclear arsenals and helped in spreading knowledge and technology for nuclear weapons around the world.

Therefore, the international community of scientists and engineers has a major responsibility for stopping and reversing this spread.”

Extract from the INESAP Founding Statement
“The existence of thousands of nuclear weapons is the most dangerous legacy of the Cold War. [...] 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. [...] So today, I state clearly and with conviction America’s commitment to seek the peace and security of a world without nuclear weapons. 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.”

[...] Make no mistake: As long as these weapons exist, the United States will maintain a safe, secure and effective arsenal to deter any adversary, and guarantee that defense to our allies [...]”

Thus, the NPT has neither provided us with a world free of nuclear weapons nor has it stopped their proliferation.

Global security is, however, not only threatened by the nuclear dangers but also by a noticeable increase of the military use of space. Some countries introduce technologies that would allow the projection of military force in, from, through, and into space. China and the United States demonstrated the inherent anti-satellite capability of missile defense technologies in recent years, and the U.S. will extend its ballistic missile defense system to Europe, thus introducing additional instabilities in the transatlantic relations.
**Why we do what we do**

Fundamental insight into these complex problems and practical advice and concepts are essential to turn the tide. The International Network of Engineers and Scientists Against Proliferation is a non-profit, non-governmental organization of scientists and engineers who are willing to think and act responsibly in the face of the nuclear threat.

**ACTIVITIES**

Since 1994 we attended all Non-Proliferation Treaty conferences held at the United Nations in New York, Geneva, and Vienna. INESAP participants observed the formal meetings, talked to foreign ministry officials and diplomats, participated in the drafting of the official NGO speeches, organized high-level panels and workshops, and co-sponsored many NGO side events, in particular promoting a Nuclear Weapons Convention.

INESAP strives to provide in-depth analysis of the scientific-technical background of the nuclear perils as well as conceptual proposals how to deal with the technology-driven problems. That combination of a science-based rigorous view on the facts and the development of pathways for the political practice is central for our work.

In our assessment, the fundamental underlying problems are

- not tackled by international policy and diplomacy due to traditional thinking and acting of those involved, lenience with an unsatisfactory status quo, and the powerful influence of a small number of leading nuclear weapon states,
- neglected by (nearly all) national policies since comprehensive solutions and successes cannot be achieved in the short term,
- denied by most scientists because they are unwilling to acknowledge the alarming consequences of scientific-technological progress and reluctant to act politically,
- ignored by the public due to habituation and a feeling of overwhelming complexity.

Media generally respond to extraordinary events, such as the collision of two nuclear-tipped submarines or North Korean missile tests, or they hype dangers, such as the one of a nuclear Iran. Politicians, in turn, often lack new and forward-looking thinking and instead take resort to old and short-sighted concepts. But muddling through and piece-meal engineering fall short of providing solutions to the daunting challenges ahead. INESAP brings together individuals who are open-minded and unprejudiced regardless of their affiliation or nationality to discuss the issues at stake. The network is not shy to be outspoken, and focused to make decisive contributions beyond national policies. We aim high: we want to help cut the Gordian knot of the intrinsically linked questions of
nuclear armament, disarmament, non-proliferation, possession and use of civil-military ambivalent technologies and materials.

INESAP acknowledges the specific characteristics of science and technology that fall within the scope of our activities:

- they are both part of the proliferation problem as well as of the solutions for disarmament such as verification;
- they can be used for civilian and also for military purposes (dual-use);
- and often they are labeled as defensive although their offensive capabilities are obvious.

THE BEGINNINGS

At the INESAP founding conference in August 1993, more than 50 scientists, engineers, and security experts from 20 countries met in Mülheim, Germany. The INESAP network and projects were started “to delineate different possible approaches to addressing the problems of development and spread (vertical and horizontal proliferation) of nuclear weapons and their related delivery systems worldwide, explore which policy options there were agreement on and which INESAP should work out to promote, and to identify any unresolved technical issues on which research was needed.”

Founding conference of INESAP in Mülheim (Germany) in August 1993
“INESAP has played a very special role in informing debates about nuclear disarmament and non-proliferation for over fifteen years.

It has pushed the debate forward, often through articles in its valuable INESAP Information Bulletin, on issues such as how to move beyond the NPT, the design and verification of a Nuclear Weapons Convention, possible options to control and eliminate nuclear weapons delivery systems, and most recently on the possibilities for preventing space weapons. More important than even its technical contribution, INESAP embodies a model for the kind of collaboration between technical experts and policy analysts from nuclear weapon states and non-weapon states, from north and south, that will be required to create the new ideas the world needs to address vital issues of peace and security.”

Professor Frank von Hippel, Co-Director, Program on Science and Global Security, Princeton University

Since its founding, INESAP has had a clear vision of its goal: to achieve a well-organized transition from the current dangerous situation, in which a small but growing number of states possess nuclear weapons, towards a treaty regime that rids the world of the threat of nuclear weapons and gives us the tools to maintain a nuclear-weapon-free world.

We have to realize that the current non-proliferation regime is contradictive and unfair and hardly the sustainable solution for the future ahead. A new approach is urgently needed, if we as human beings really want to get rid of the nuclear threat once and for all. As a unique science-based advocacy group INESAP has therefore tasked itself with opening paths for new thinking and promoting innovative nuclear non-proliferation and disarmament concepts and policies.
Why our projects make a difference

INESAP undertakes its work in the context of a multifaceted landscape of research institutions, think tanks, and non-governmental organizations, each of which has a specific strength and agenda. While the Pugwash Conferences on Science and World Affairs (Nobel Peace Price 1995) influence politics by working on a diplomatic level behind closed doors, INESAP puts its main efforts in directly addressing the public and political arenas. In addition INESAP engages in diplomatic approaches where considered appropriate. We support concerned scientists, citizens, and politicians and supply them with critical analyses of fundamental non-proliferation and disarmament issues which are pivotal to the work of other national and international non-governmental organizations and political decision makers.

INESAP has initiated and participated in a number and variety of projects. Thanks to our global contacts, creative ideas, interdisciplinary approaches, and outreach to different communities (from grassroots to government officials), we have had considerable impact on international debates.
BAN KI-MOON BACKS NWC

“I urge all NPT [Treaty on the Non-Proliferation of Nuclear Weapons] parties, in particular the nuclear-weapon States, to fulfil their obligation under the Treaty to undertake negotiations on effective measures leading to nuclear disarmament.

They could pursue this goal by agreement on a framework of separate, mutually reinforcing instruments. Or they could consider negotiating a nuclear-weapons convention, backed by a strong system of verification, as has long been proposed at the United Nations. Upon the request of Costa Rica and Malaysia, I have circulated to all United Nations Member States a draft of such a convention, which offers a good point of departure.”

*UN Secretary-General Ban Ki-moon, address to the East-West-Institute, October 24, 2008*

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The INESAP study *Beyond the NPT. A Nuclear-Weapon-Free World* outlines the transformation from the existing non-proliferation regime towards a nuclear-weapon-free world and advocates multilateral negotiations on a Nuclear Weapons Convention (NWC). This study was presented at the 1995 Review and Extension Conference of the Non-Proliferation Treaty (NPT) in New York together with Sir Joseph Rotblat (Pugwash President and later recipient of the Nobel Peace Prize), who supported the analysis and the proposals in his personal capacity. The study triggered a turning point among international non-governmental experts and organizations and even several government officials not to focus only on the unsatisfactory NPT but much more on an ambitious but sustainable goal.

Subsequently, as a starting point for fresh joint civil society efforts, in cooperation with the International Association of Lawyers Against Nuclear Arms (IALANA), the International Physicians for the Prevention of Nuclear War (IPPNW) and other international scholars and experts, INESAP worked out the *Model Nuclear Weapons Convention*. Drafted first in 1997 and updated in 2007 the model NWC has meanwhile found wide support in international arenas, e.g. by European Parliament resolutions, several resolutions in the UN General Assembly and by the UN Secretary-General Ban Ki-moon. The text has been introduced to the United Nations General Assembly by Costa Rica and Malaysia (UN documents A/C.1.52 and A/62/65, respectively.) The companion book *Securing Our Survival*
(SOS) - *The Case for a Nuclear Weapons Convention* explores the legal, technical, and political requirements for a nuclear-weapon-free world.

- In 2008 and 2009, again at NPT conferences, the Model Nuclear Weapons Convention was put to test: under INESAP guidance, 30 students simulated negotiations on the convention – an exercise that was closely observed by diplomats and non-governmental representatives.

- On many occasions, INESAP scientists made unique contributions to advance the international debate on issues like the role of tritium in arms control; the disposal of huge stocks of weapon-grade plutonium; ways to avoid the use of weapons-grade highly enriched uranium in research reactors world-wide; the comprehensive cut-off of production of weapons-usable nuclear material; safeguarding and eventual elimination of civilian and weapons-grade fissile materials; the scope of a nuclear test ban treaty and its verification; the concept of preventive control for nuclear non-proliferation to follow a sustainable path to a nuclear-weapon-free world.

- INESAP has also looked into the issue of missiles and missile defenses. In 2001, in cooperation with the Nuclear Age Peace Foundation, the *Moving Beyond Missile Defense* project was set up to assess the political and technical link between the proliferation of missiles, the introduction of missile defenses, and the weaponization of space. The project also investigated the possible expansion of international missile control, limitations of ballistic missile testing, ballistic missile free zones, a Zero Ballistic Missile regime, a regionally extended Anti-Ballistic Missile Treaty, and proposals for a space weapons ban.
In 2006, INESAP founded the independent Group of Scientific Experts on the detection of clandestine nuclear-weapons-usable materials production (iGSE) (www.igse.net). The group’s goal is to address the biggest loophole of nuclear safeguards, namely unreported activities that are not accessible for inspections of the International Atomic Energy Agency. Besides satellite observations, other sensing technologies for remote detection need to be developed. The iGSE focuses on environmental tracers that carry signatures of clandestine nuclear activities.

The list of INESAP activities in our first 15 years is long. Additional topics include the chemical and biological weapons convention; the dual-use of nuclear, missile and space technology; the arms race in South Asia and Northeast Asia; security in the Middle East; the modernization of existing nuclear arsenals; the nuclear sharing system in the North Atlantic Treaty Organization; nuclear-weapon-free zones; verification of a nuclear-weapon-free world; the ambivalence of space technology and the ethics of space use; prevention of an arms race in outer space.
Networking and cooperation with other groups and individuals is a major feature of our work. We provide an interface between grassroots groups, scientists, think tanks, academia, and political decision makers including foreign ministry officials and diplomats. In addition, INESAP is part of the activities of the International Network of Engineers and Scientists for Global Responsibility (INES).

We are united in our common goal: to achieve a world free of nuclear weapons without the need for missile defense systems and a ban on weapons in space. This is an essential precondition to allow the world to concentrate on solutions for other pressing problems like climate change, poverty reduction, and the creation of peaceful international relations.

How you can become a part of INESAP:

You are invited to participate in our activities:

- Contact us if you are interested in contributing to our projects, workshops, conferences and publications.
- Let us know if you want to write for the INESAP Information Bulletin. Articles of more than 200 individuals have so far been printed in our Bulletin.
- Become a supporter of our activities and goals by giving a (regular) financial contribution for INESAP work.

OPEN LETTER TO U.S. PRESIDENT-ELECT

“Our proposal today is to start negotiations on a Nuclear Weapons Convention now. The pattern has to be the one which has already been set by the Biological and the Chemical Weapons Conventions – a total ban. A Nuclear Weapons Convention should not be regarded as a premature jump to a distant goal. Instead, it establishes the framework for a logical sequence of steps that ensure the safe transition to the complete disarmament of nuclear weapons in all its aspects under strict and effective international control.”

Open letter U.S. President-elect Barack Obama, January 2009, initiated by Sir Harold Kroto, Nobel Prize in Chemistry 1996, on behalf of INES and INESAP
INESAP has several publications to spread the word about the dangers of the nuclear age and the proliferation of weapons of mass destruction as well as science-based solutions to the most pressing problems.

**INESAP Information Bulletin:**

#1 was printed in April 1994, 28 issues have been published by 2009. On average, 1,200 printed copies are sent to our subscribers and the Bulletin is also posted on the Internet. The Bulletin has become a medium for distribution of key scientific and policy-oriented insights within the international community of experts in non-proliferation and disarmament.

**Briefing Papers:**

INESAP published Briefing Papers on a wide range of issues such as Beyond Technical Verification – Transparency, Verification, and Preventive Control for the Nuclear Weapons Convention (#1), Monitoring and Verification for a Middle East Weapons of Mass Destruction Free Zone (#5), Models for Missile Disarmament (#9), or The Chemical Weapons Convention and the Role of Engineers and Scientists (#12).
Books:

A few books resulted directly from INESAP work. The following are some examples:

- **Securing Our Survival (SOS). The Case for a Nuclear Weapons Convention** by Merav Datan, Felicity Hill, Jürgen Scheffran, Alyn Ware, et.al., 2007

- **Space Use and Ethics** by Wolfgang Bender, Regina Hagen, Martin B. Kalinowski, and Jürgen Scheffran (eds.), 2001

- **Global Elimination of Nuclear Weapons** by Martin B. Kalinowski (ed.), 2001

- **Against Proliferation - Towards General Disarmament** by Wolfgang Liebert, Jürgen Scheffran (eds.), 1995

- **Beyond the NPT: A Nuclear-Weapon-Free World – Preliminary Findings of the Study Group “Beyond the NPT”** by INESAP, April 1995

Technical Reports:

- **#1: The Physical Principles of Thermonuclear Explosives, Inertial Confinement Fusion, and the Quest for Forth Generation Nuclear Weapons** by André Gsponer, Jean-Pierre Hurni; sixth printing, 1999


Internet:

We make sure that the information we provide is easily available on the worldwide web. Our websites are [www.inesap.org](http://www.inesap.org) and [www.igse.net](http://www.igse.net).

“Securing our Survival” with text and detailed explanations of the Model Nuclear Weapons Convention by INESAP, IALANA and IPPNW, 2007

(Public) Events:

■ A Workshop entitled "Fissile Materials and Tritium: How to Verify a Comprehensive Production Cut-off and Safeguard all Stocks" took place at the Palais des Nations in Geneva in June 1995. The cooperation with the United Nations Institute for Disarmament Research ensured that the results of the workshop and the related research project gained visibility within the United Nations and among national delegations to the Conference on Disarmament at Geneva.

■ A meeting in September 1997 in Shanghai was the first international conference specifically dealing with nuclear weapons and delivery systems in China. It was hosted by the Center for American Studies at the Fudan University in Shanghai.

■ In January 2003, one of the conferences of the Moving Beyond Missile Defense project was held in Berlin. It dealt with International Arms Control, Transparency and Verification in a European-Russian Framework of Cooperative Security. The launch meeting of that project was held in Santa Barbara/California in November 2001.

■ In May 2008, the iGSE held a workshop on Remote Environmental Sampling for Nuclear Safeguards in cooperation with the Working Group on Verification Technologies and Methodologies of ESARDA (European Safeguards Research and Development Association). The workshop took place in the European Commission Conference Centre in Luxembourg. Another iGSE workshop took place in Vienna in November 2009 on Matching Analytical Sensitivities with Proliferation Signature Concentrations in the Environment.
How you can help

INESAP is managed by the Interdisciplinary Research Group Science, Technology and Security (IANUS) at Technische Universität Darmstadt. IANUS also provides the office space and a limited part of the infrastructure for INESAP.

Since 1993, INESAP received funds for projects i.a. from Berghof Stiftung für Konfliktforschung; Ford Foundation; IANUS; John D. and Catherine T. MacArthur Foundation; Nuclear Age Peace Foundation; Ploughshares Fund; and W. Alton Jones Foundation.

Over many years, INESAP received core funding from the Nuclear Age Peace Fundation (NAPF). This is no longer possible. Therefore, we must now assure other means to fund the INESAP office and INESAP projects.

Future activities are only possible if INESAP recieves financial contributions form its supporters.

INESAP contributes to make our planet a more secure place. We hope that you will contribute to our work with a donation!

Donations can be made from our website www.inesap.org by PayPal or through our bank account at Postbank Dortmund:

Account number: 710 863 466
Bank ID (BLZ): 440 100 46
IBAN: DE67 4401 0046 0710 8634 66
SWIFT-BIC: PBNKDEFF

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