

Atoms for Peace After 50 Years

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Let me first of all thank you for the invitation to address you on the occasion of your workshop on President Eisenhower's Atoms for Peace program 50 years ago. There is nothing more peaceful than an excellent dinner and a superb wine. I shall therefore try to follow Martin Luther's advice to one of his pupils who asked him what made a good sermon. He answered: speak up, be precise, know what you are talking about – and be short.

Eisenhower's speech stands at the origins of détente after the Second World War. He recognised the dangers of nuclear weapons and offered to provide every nation who so wished all the information necessary for the peaceful applications of nuclear science. Any nation which renounced the development of a nuclear deterrent would be helped to develop nuclear energy. The fear of the atom would thereby disappear and abundant energy would be provided in the power-starved areas of the world. „And they shall beat their swords into ploughshares“, as the prophet Isaiah said.

Did this offer bring about the desired result? Was nuclear proliferation stopped? Has the civil use of the atom been attractive enough for countries to accept the exchange of the nuclear deterrent for the nuclear reactor? I should now like to elaborate on some of these questions.

Détente is a diplomatic term of exquisite ambiguity. For those who wish it can mean „relaxation“ or a „spell of mild weather“. It is also the French word for the trigger of a gun. In the context of the second half of the 20th century it obviously signified the release of pressure. But whether that release was to have a benign or a deadly effect was entirely open to conjecture.

In the following decades we learned the lessons from a deeper interpretation of the Old Testament. The prophet Joel, reversing Isaiah's contention, commands the peoples of the valley of Jehoshaphat: „Beat your ploughshares into swords...“. In other words, ploughshares can be converted back into swords. The same may happen with the components required for nuclear weapons. They can be extracted from reactors initially intended for civilian purposes. Therefore, good intentions do not suffice: effective surveillance is required to prevent appropriation for military purposes.

We know that disarmament dragged on for decades. Even today it is still on our agenda, perhaps more urgent than before because more and more countries are suspected of

owning or developing weapons of mass destruction. Europe is aware of this threat. At the G8 Summit of Kananaskis, the European Union committed 1 billion Euros over ten years to the G8 Global Partnership against the spread of weapons and materials of mass destruction. EU member states together committed even more. Six weeks ago the Council of the European Union published an „Action Plan for the Implementation of the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction“. The European Union even considers coercive measures, in cases where political and diplomatic measures have failed, including as a last resort the use of force in accordance with the United Nations Charter.

Addressing the United Nations General Assembly Eisenhower assured his audience „that the Government of the United States will remain steadfast in its support of this body“. I am not sure whether the actual administration would repeat this sentence with the same determination. The Europeans, on the other hand, argue that the UN Security Council should play a central role. This is perhaps our major transatlantic difference today.

The good news of the last 50 years is that nuclear weapons have not been used although the world was at least once, during the Cuban crisis, on the brink of a nuclear war. And the two nuclear superpowers, USA and Russia, agreed to reduce considerably their nuclear

arsenal. Three countries, Brazil, Argentina and South Africa were persuaded not to develop and possess nuclear weapons.

The bad news is that today we have more nations with nuclear weapons than in Eisenhower's time. Some others are suspected of developing them. Although no nuclear bomb was dropped in anger, chemical weapons were used in Saddam Hussein's war against Iran and – against his own population. By the way – while he was exterminating his enemies like flies the west cowardly closed its eyes.

But what has not happened yet might well happen tomorrow. Unfortunately our controls is not tight enough to prevent countries developing weapons of mass destruction. The European Union should therefore - in close co-operation with her allies - do everything within the power of man to stop their proliferation.

The great danger – as always in politics – is that politicians don't follow the rules of rationality. Had Hitler had an atomic bomb he would have used it. If Bin Laden had biological or chemical weapons he would probably use them. In the era of suicide bombers fanatics do not only kill their enemies, they also destroy themselves willingly. Their ultimate aim is not to win but to follow archaic principles. Like the Nibelungen in the old German saga who went to Attila's court knowing very well that this would unavoidably be their bloody end. It is an old

story, repeated with modern technology – the wish of self-destruction with a big bang.

Viva la muerte – long live death, this old Spanish slogan is reborn in a fanatical world which leads us to doubt whether history is a process of civilisation.

Sometimes I even get the impression that some politicians are subject to Heisenberg`s uncertainty principle: the position and velocity of a given person cannot be determined at the same time. Politicians – like public opinion - are incalculable, are mobile. „La donna è mobile“ is a famous aria in the Italian opera Rigoletto. If Verdi were to rewrite his opera he would perhaps write „Il politico è mobile“. Certainly, it would be less frivolous, but true. In other words our future is uncertain. We cannot foresee it. We know perhaps what we want but we do not know what will happen.

We can also put these words in a positive context. The future is the area of all our possibilities, of our liberty. And therefore peace is possible if we create the right conditions, if we want it.

The danger is also with those who have possessed nuclear weapons for generations. First of all they are an incentive for those who do not possess them. Some „have-nots“ see no reason why some have the right to possess nuclear weapons and others not. And second, who guarantees that the men or women at the top will make no mistakes?

Never in human history was a single man or woman as powerful as the president of a nuclear power state. He or she alone – and not the parliament – decides over war and peace, over deployment or not, over life or death of a whole civilisation. Certainly, this may not be the intention of today’s nuclear weapon states and their presidents. But who can provide a guarantee for the future? Are we sure that India and Pakistan will never use their nuclear weapons against each other? If that were the case, why should they have them? We had the First World War which in the end nobody wanted. The German Emperor, Wilhelm II wrote the following words on the wall of his Alsatian castle: “this I did not want”. But when he wrote it was already too late. We have seen a civilised nation like Germany becoming barbarian in the worst sense of the word after having blindly fallen into the trap of Hitler’s expansionist policy. In politics – contrary to physics – everything is possible. There are no laws of nature, there are only laws of men. And they may change with them.

There is certainly a high probability that nothing will happen. But probability is not certainty. It is no more than a desperate attempt by chaos to become stable. That is why politics is still an art and not the execution of natural laws.

By way of conclusion we can say that the danger has not disappeared. Under the cover of international terrorism

and – what the Americans call – rogue states the danger is still there and even more malevolent.

Let me come to the second part of Eisenhower's speech, the peaceful use of nuclear power. He advocated it not only as a counterweight to a nuclear deterrent, but also because he and his contemporaries were convinced of the unique advantages of the technology. His speech was given in an enthusiastic climate of technological progress. In his times everything seemed to be possible; the world had no limits. I still remember these times when I was a student of physics in the 60s. We seriously discussed nuclear ships and nuclear railways. My own party – which is today unfortunately opposed to nuclear energy – wanted to build a new nuclear power station every year. In the 70s we had just in Germany three companies offering a full range of nuclear installations. And they all made money.

Today you know where we are. Public opinion has changed. Or in Shakespeare's words in Julius Cesar: „There is a tide in the affairs of men“.

Much has been written about the causes of this turn of the tide. Is the world of atoms dangerous? Are public fears justified? Are nuclear plants reliable? How are workers and the population at large protected from radiation?

I have followed this debate from the beginning. And I had to learn that it is totally irrational. Sometimes it is simply due to a lack of knowledge. Sometimes even knowledgeable people reject nuclear power out of hand.

In my own country the red-green government wants to phase out nuclear energy in an irreversible way. Three Mile Island and Chernobyl are said to be the reasons. Nuclear technology is declared to be not manageable in principle. It is as if Britain had phased out her Majesty's fleet after the disaster of the Titanic.

Nuclear – they say - is not a technology like others, it is the antinomy to what is responsible. Its possible damage exceeds the limits of space and time. It is therefore not sustainable.

This is mere conjecture. We are able to build safe power stations. We could even build ones with an intrinsic safety system. The space argument therefore loses its value. And we are technically able to separate waste from the environment. The waste problem is not so much a physical problem as a psychological one. Reprocessing and transmutation reduces the volume of waste considerably and could even reduce the half-life of the radioactive waste to a few human generations and thereby weaken the argument of time.

The problem is that many people just don't believe you. In nuclear affairs some behave like the absent-minded

professor who met a friend and said: “I heard you'd died”. “But you see I'm alive”. “Yes, but the man who told me was much more reliable than you”.

My own experience with the antinuclear movement makes me believe that the real reason for the rejection of nuclear energy is that nuclear acts as a catalyst for the torments of our time. With the loss of our ideologies, of our belief in a better world, with the dissolution of our families, with the collapse of a social utopia man has lost his security. To free himself from his responsibility he has two ways out: one is life as entertainment, as mere fun and the other is the tendency to regard himself as a victim. Pascal Bruckner's fascinating book “La tentation de l'innocence”, in German “ich leide, also bin ich – I suffer, therefore I am” became a bestseller when it was published 8 years ago. Like a friend whom I met recently. I asked him routinely: “How are you?”. I feel bad“. “And why?” “I have nothing to complain about”. His amusing answer had some truth in it.

We are free individuals, we lost our chains, but we also lost our security. Particularly the classical European left, after the loss of its socialist utopia, was looking for a surrogate and found it in solar energy. Solar is the antinomy to nuclear like democracy is to oppression. Solar is soft, nuclear hard, solar is Venus, nuclear is Mars, solar is decentralised and by definition democratic, nuclear is barbed wire, centralist and oppressive, solar is

eternally friendly and free of charge, nuclear is eternally dangerous and costly, solar creates jobs for the poor, nuclear for the rich, solar brings us the socialist ideal back, nuclear is instead a capitalist form of energy, etc., etc.

The opposition of solar and nuclear – as if solar physics at the end of the day were not nuclear as well – gave many people a new security in life. To profess solar energy brought the lost self-confidence back. They had again a clear and visible enemy. And they were again sure to have right on their side. The lost social utopia came back under the image of a solar utopia.

Utopia, meaning „no place“, was the name coined in 1516 by Sir Thomas More for his book describing his search for an ideal form of government. His book, originally written in Latin and later translated into English, French, German, Spanish and Italian became a best-seller. In it More described a land where property was held in common, both men and women benefited from universal education, and all religions were tolerated. Incidentally, Europe's history is full of utopian concepts, from Plato's Republic to Bacon's New Atlantis, to the utopian Socialists and – to some extent – even the Fascists. In the seventeenth century Tomaso Campanella's „civitas solis – città del sole – sun state“ made a big impression on his contemporaries. It was another utopian blueprint of a perfect order, a dream of a perfect and classless state, perfect like the radiation of the solar system and therefore

given by god. In our times it was paraphrased into a just society driven by solar technology. Solar technology became the watchword of the new utopia, a risk-free and just society of equals.

Campanella – by the way – wrote to Cardinal Richelieu in 1637, two years before his death, to suggest that he establish the „sun state“ in France – and he greeted in haughty hope the birth of the future Louis XIV, the later so-called “Roi Soleil”, the sun king. The sun has always attracted man's imagination and fantasy.

The word sun is masculine in the Latin languages, female in the Germanic ones. That is perhaps a deeper reason why solar technology is much more developed in the colder north than in the warmer south. The sun is the origin of life, she gives warmth and light, she is generous and friendly – a technology based on the sun therefore cannot but be benign.

The dichotomy nuclear versus solar therefore became much more than a question of possible risks. It was no longer a technical question, it was not regarded any more through the prism of its possible usefulness – incidentally, who could earnestly deny the technical attractiveness of solar energy - it became a question of lifestyle, of confession. It was no longer a question of “as well as”, it was exclusively a problem of “in favour” or “against”. In Germany many churches, mostly protestant ones, are now

equipped with solar panels in order to allow god to land on their roofs – as a leading proponent of solar energy once explained it.

Eisenhower would have been surprised about this scholastic dispute. He believed in atoms for peace not in atoms for oppression. But he lived in different times.

Today again, we are experiencing a change of attitudes, or in Shakespeare's words a change of tide.

First of all there is a new generation with other problems and fears. It is a generation, which lost its illusions and has few expectations. Their main problem is getting a job. Social security is their top priority.

Second, people are beginning to understand that the phasing out of nuclear energy is not free of charge. Recently the Swiss population rejected the phasing out of nuclear energy in a nation wide referendum. And the Swiss are known to be very environmentally friendly. But they also count their money. The Finns decided – in a very transparent and democratic process – to build a fifth nuclear power plant. Even in Italy there are voices in favour of nuclear power – provided that the power stations are built in France and electricity is sold cheaply to the Italian customers!

But, joking aside, I get the feeling that we are slowly approaching normality. The main reason is that nuclear is needed. We need it to comply with our obligations under the Kyoto Protocol. We need it to be less energy dependent. We need it because of its relatively low costs. We need it to produce hydrogen in the future.

If no major incident occurs the price of electricity will decide the matter. And there is some probability that the price of nuclear electricity will remain at least stable whereas other energy sources will become more costly, fossil fuels because of the additional costs of CO₂ mitigation and their limited availability, renewable energy sources because of their inherently low energy density. Maybe we shall discover something surprisingly new, then the pattern may change. But whatever we discover, in the final analysis it is always the price that drives energy policy.

Never in the history of mankind was a single technology phased out simply because one's knowledge of the past cannot be erased. And when a technology is needed it is used. Why should it be different with nuclear?

And third, public opinion is not a constant over time. In Germany we have seen how the Greens can become extremely responsible. Ten years ago, it was unthinkable that the German parliament would send soldiers to

Afghanistan or Africa with the Greens voting in favour. Today, it goes without saying.

But something else has changed since Eisenhower's time. The optimism about nuclear energy has been replaced by a more sober attitude. If ever there were a renaissance of the peaceful use of nuclear energy in the west it would be based on a clear-headed approach. The enthusiasm of the early fifties has gone – perhaps forever. Today's attitude is a more utilitarian one. Nuclear is a technology like the others – with its advantages and its drawbacks.

Is Eisenhower's offer still working – support for the peaceful use of nuclear energy in exchange for the renunciation of nuclear weapons? The answer is rather no. Countries like Brazil, Argentina and South-Africa renounced their military ambitions not because they were offered support for a civil nuclear programme but because they felt that there was no more need for a nuclear deterrent. And- to be frank- because they were under pressure from outside. And whatever North Korea is offered – without pressure the regime will not renounce its weapons of mass destruction programme.

In other words, today's policy is rather one of sticks and carrots instead of a mere gesture of good will.

What is needed in the future? The answer is simple: we need preventive diplomacy and enforcement action and we need to develop risky technologies together.

We must therefore modernise the collective security system of the United Nations Charter. The Security Council should be reconstituted to include the major political and economic powers of today's world. Sanctions should be developed that target governments rather than the governed. In short, a new approach is needed that applies to all weapons of mass destruction, in all states, to abolish over time the divide between the “haves” and the “have-nots”.

Concerning the peaceful use of nuclear energy, there is some confidence that future generations of nuclear reactors will be developed jointly and therefore they will have common safety features. Countries who want to develop nuclear reactors should be invited and encouraged to join the nuclear club of researchers and developers. And they should be rewarded for joining – by technology, knowledge and the advantage of access to the highest possible safety standards.

Therefore, the future belongs to projects like Generation IV for fission and ITER for fusion. It is the answer of the nuclear community to globalisation – joint undertakings and shared safety. If we start the 21st century with this message we may perhaps achieve what Eisenhower

wanted – a world free of the threat of destruction.
Armageddon can still be avoided.