The background of the slide is a composite image. The top half shows a view of Earth from space, with the blue and white clouds of the planet visible against the blackness of space. The bottom half shows a nuclear mushroom cloud, with a bright yellow and orange fireball at the base and a white, billowing cloud rising into the air. The text is overlaid on this image.

Examining the interplay between climate change and nuclear weapons

Rob van Riet says conflicts induced or exacerbated by climate change could contribute to global insecurity, which, in turn, could enhance the chance of a nuclear weapon being used

Two principal threats of our time

While humanity faces a range of interconnected transnational threats and crises in the 21st Century—including extreme poverty, hunger, pandemic disease and demographic change—climate change and the continued existence of nuclear weapons stand out as the two principal threats to the survival of humanity. On the long arc of human existence, both threats are relatively new to the scene, having only appeared over the last century. Both threaten the survival of life on earth as we know it and both are of our making.

As the World Future Council has highlighted in a [recent report](#), climate change and nuclear weapons interact with each other in a range of ways. Conflicts induced or exacerbated by climate change could contribute to global insecurity, which, in turn, could enhance the chance of a nuclear weapon being used, could create more fertile breeding grounds for terrorism, including nuclear terrorism, and could feed the ambitions among some states to acquire nuclear arms.

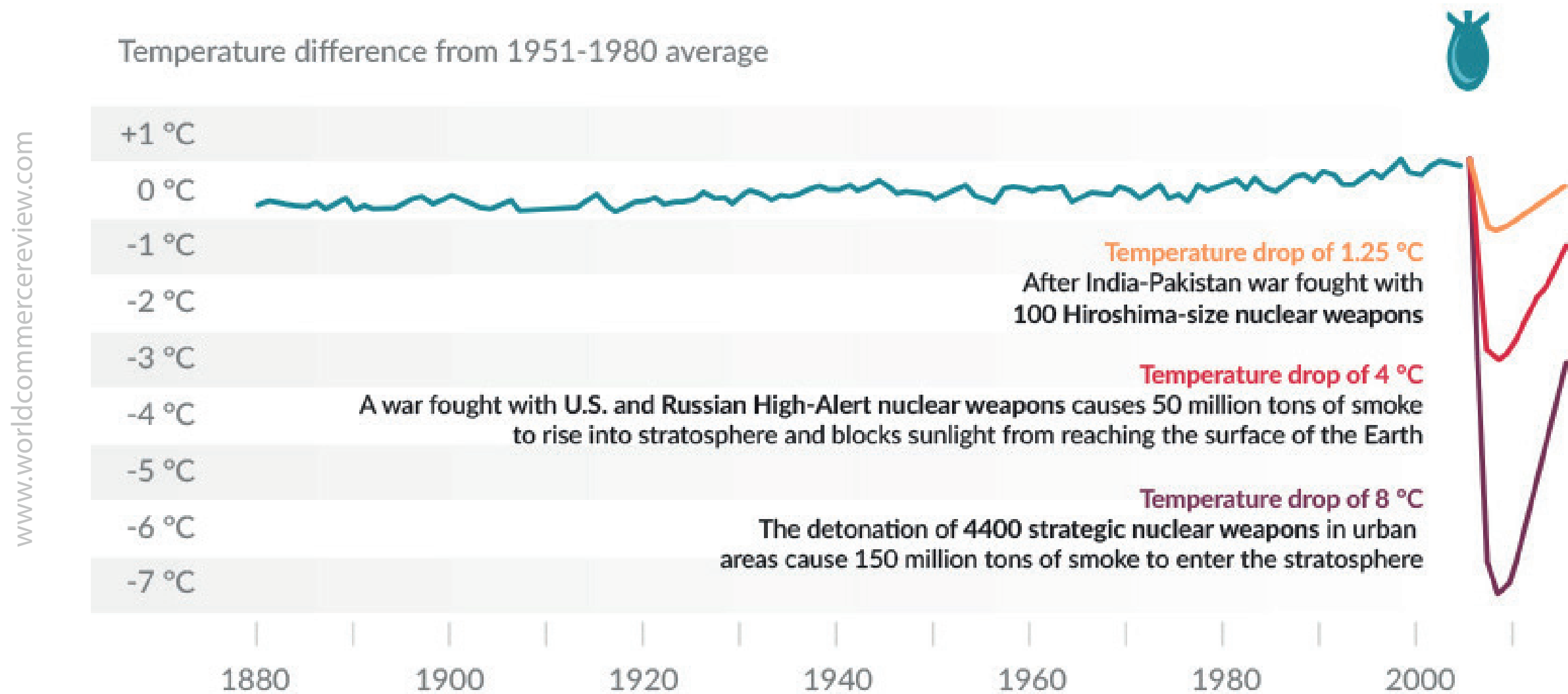
Furthermore, as evidenced by a series of incidents in recent years, extreme weather events, environmental degradation and major seismic events can directly impact the safety and security of nuclear installations.

Moreover, a nuclear war could lead to a rapid and prolonged drop in average global temperatures and significantly disrupt the global climate for years to come, which would have disastrous implications for agriculture, threatening the food supply for most of the world (see Figure 1). Finally, climate change, nuclear weapons and nuclear energy pose threats of intergenerational harm, as evidenced by the trans-generational effects of nuclear testing and nuclear power accidents and the lasting impacts on the climate, environment and public health from carbon emissions.

The need for global action

Negotiations and initiatives for tackling the climate and nuclear threat are reaching a critical stage.

Figure 1. Global average surface temperature changes for small, moderate and large nuclear wars in the context of the change of climate since 1880



Source: nucleardarkness.org

At the UN Climate Change Conference in Paris in December 2015 (COP 21), the global community reached an unprecedented agreement on climate change. The Paris Agreement sets out a global action plan to peak greenhouse gas emissions as soon as possible and avoid dangerous climate change by limiting global warming to well below 2°C with the aim to limit the increase to 1.5°C, since this would significantly reduce the risks and impacts of climate change. However, there is some concern about whether this agreement can be enforced effectively. Countries are required to communicate Intended Nationally Determined Contributions (INDCs) to mitigation of and adaptation to climate change which will be regularly reviewed. However, meeting the goals set in the INDCs is not legally required.

Meanwhile, calls from a majority of states for a legally binding instrument or package of measures to achieve the universal prohibition and elimination of nuclear weapons—a goal as old as the nuclear age—have languished. Despite a recent series of interventions setting out the vision of a world free of nuclear weapons by high-level states-

Climate change, nuclear weapons and nuclear energy pose threats of intergenerational harm, as evidenced by the trans-generational effects of nuclear testing and nuclear power accidents

men—including from the nuclear armed-states—concrete action toward its achievement has lagged, although this has the possibility to change with a new process for [nuclear disarmament deliberations and negotiations](#) currently taking place at the United Nations in Geneva.

This lack of progress on nuclear disarmament has been starkly contrasted by a renewed focus on the catastrophic consequences of nuclear weapons and recent revelations on the kaleidoscope of risks inherent to nuclear policies and postures. The sobering conclusions are that:

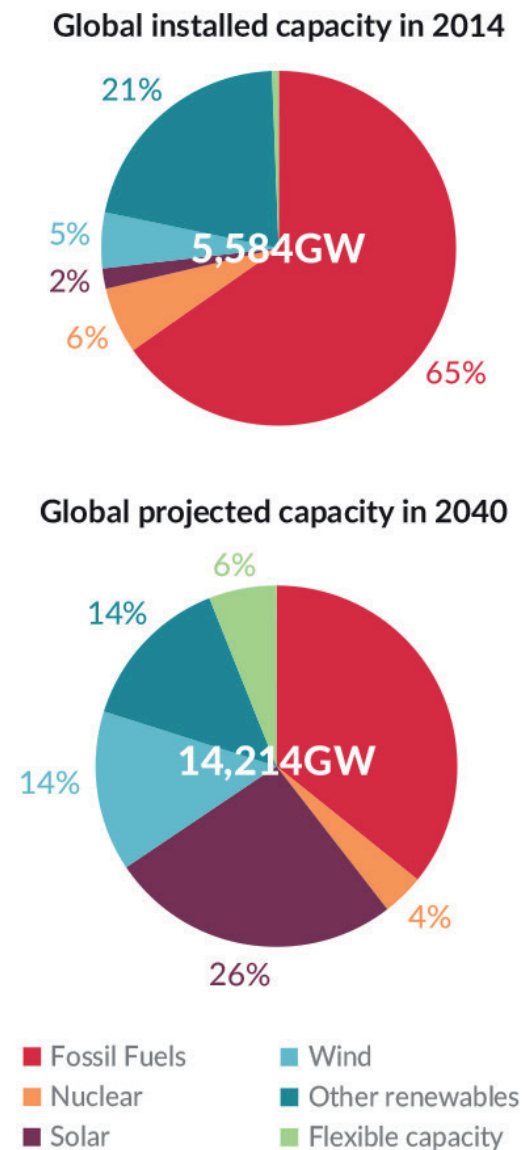
- a) as long as nuclear weapons exist, their use, whether accidental or intentional, will be a matter of when, not if;
- b) any use of nuclear weapons in a populated area would have catastrophic consequences on human health, the environment, infrastructure and political stability; and
- c) the use of just a small percentage of the global nuclear arsenal would create climatic consequences that dwarf the current and projected impact of carbon emissions.

The availability of solutions

Overall, the discrepancy between long-term goals and concrete steps undermines the conditions for international cooperation in security and climate policies. Despite growing awareness of the urgency of tackling the climate and nuclear threat among policy-makers, academics and civil society, concrete action is lagging behind.

Why is this so, when considering that renewable energy technologies provide viable alternatives? (see Figure 2) By harnessing local renewable energy sources, jurisdictions increase their political and energy independency, while

Figure 2. Global installed capacity in 2014 and projected capacity in 2040



Source: *New Energy Outlook 2015, Bloomberg New Energy Finance*

the degree of local and international cooperation needed to transition to 100% renewable energy can act as a catalyst for cooperation in tackling other transnational security threats. This helps solving geopolitical crises, avoid future armed conflicts triggered by climate instability and resource scarcity, and build cooperative security mechanisms. Similarly, regional initiatives could attempt to tackle both climatic and security threats.

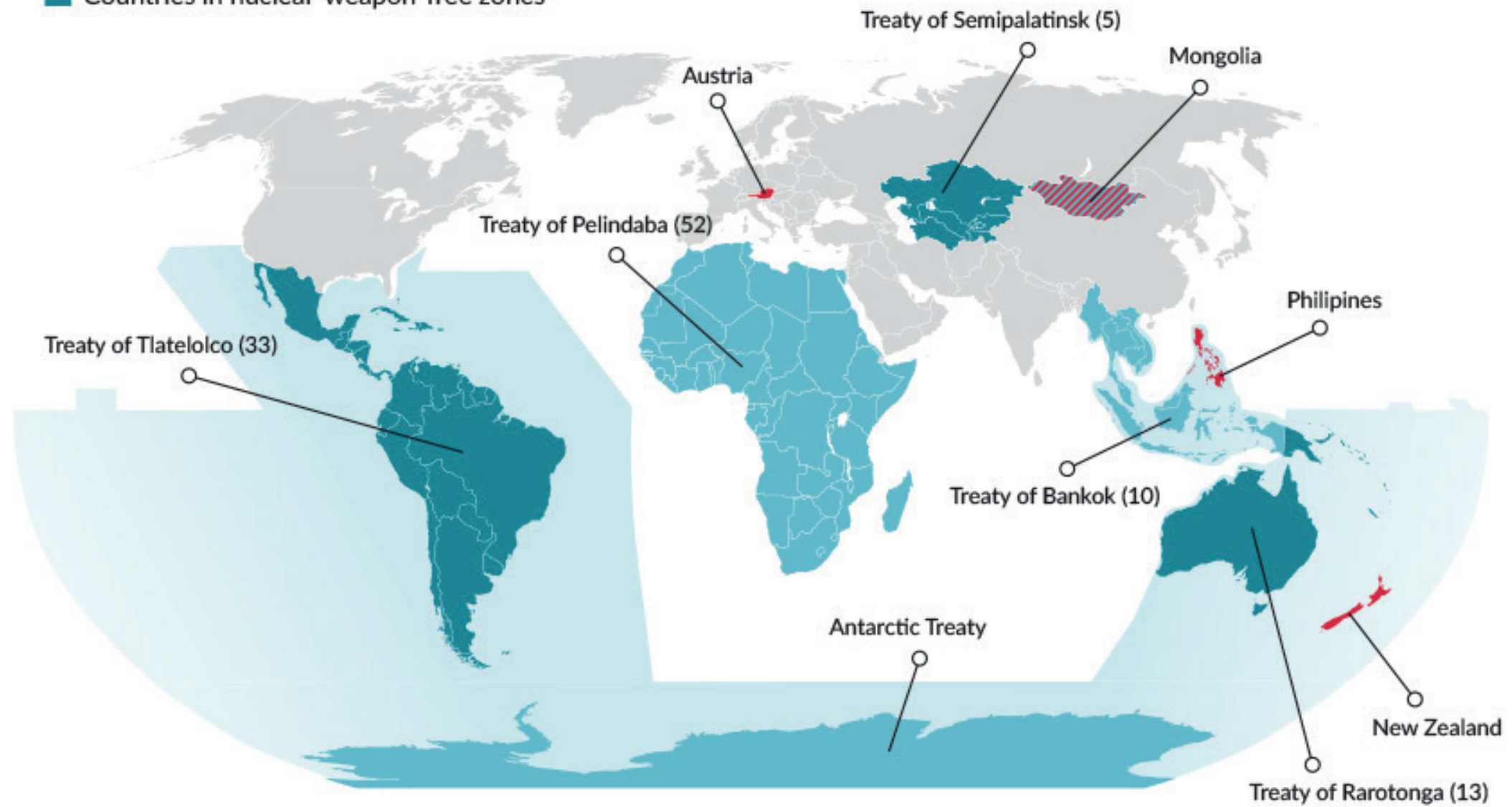
For example, Nuclear Weapon-Free Zones (which already cover the entire Southern Hemisphere – see Figure 3) can, in turn, promote regional environmental and climate protection policies, as exemplified by the Antarctic Treaty System. Such action could also be sought in the Arctic, where the effects of climate change and the dangers of nuclear weapons come together as increased competition over resources and the opening up of routes for military maneuvering and posturing, including with nuclear weapons, can heighten tensions between the region's powers.

The legal imperative

Finally, there exist international legal obligations both with regard to curbing climate change and achieving universal nuclear disarmament. It is thus not surprising that on both

Figure 3. An overview of existing Nuclear Weapon-Free Zones and countries with national nuclear prohibition legislation

- Countries with nuclear-weapon-free legislation
- Countries in nuclear-weapon-free zones



fronts, litigation has been pursued to ensure these obligations are implemented. Climate cases have been filed in several countries, including in the Netherlands, where the Court ruled in favour of the plaintiffs, noting that the State has a legal obligation to protect its citizens, ordering the Dutch government to reduce its CO₂ emissions by a minimum of 25% (compared to 1990) by 2020.

On the nuclear front, the Republic of the Marshall Islands filed applications in 2014 in the International Court of Justice against the nine nuclear-armed states (US, UK, France, Russia, China, India, Pakistan, Israel, North Korea), claiming that they are in breach of obligations relating to nuclear disarmament under the NPT and under customary international law. Cases are proceeding in March 2016 against the three of the nuclear-armed states that have accepted the compulsory jurisdiction of the ICJ—the UK, India, and Pakistan.

A cautionary tale

For the people of the Marshall Islands, and a rising number of people in other parts of the world, the effects of these two threats are not a theoretical, future issue of concern. Behind the facts and figures are stories of real suffering from climate change and nuclear weapons programmes.

The plight of one group in particular is illustrative of the human impact of the nuclear enterprise and climate change. The inhabitants of the remote Pacific island chain of Bikini Atoll were forced from their homes in the 1940s so that the United States could test its atomic bombs there, bringing with it a legacy of trans-generational effects of radiation exposure, including high cancer rates, birth deformities and environmental poisoning. The lands they had called home were declared uninhabitable.

Now, the tiny patches of earth they were relocated to in the Marshall Islands are at risk of suffering the same fate, as rising sea levels are breaching sea walls, washing over their islands, killing crops and forcing the Bikini Atoll refugees

to consider relocating again—this time to foreign continents thousands of miles away.

As if to underline the potentially catastrophic convergence of both perils, there is even the danger that rising sea levels could spill the radioactive waste from testing, which has been stored on the islands, into the ocean. Their experience should serve as a cautionary tale. If we don't seize the opportunities soon to rid the world of these threats, we will drift toward a similar fate. ■

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