

WordPress English – 2022



Illustration 1 - Baroque's Standard

A Future Prospect - Humanity's Potential

In this entry, I do not try to predict what may occur within our lifetime or even in the future several generations from now. It's about possible optimistic path humanity as a whole can take by solving our current problems which solutions we already have.

The 2020s have just begun; doom and gloom scenarios alone won't get us anywhere.



Illustration 2 - Image by VisionPics (Pixabay)

Climate Change

Let's begin with the biggest threat not only to our way of life, but also to the ecosystems and the animal kingdom.

By investing in public infrastructure (thereby also reducing car usage, especially in cities where they just use up space and make it an unsafe environment) and renewable energies, a lot of Co₂-emissions can already be cut down. Once cars are pushed out of the cities, more places will be available to build public parks or apartment buildings (example: in the US, a lot of houses were destroyed in favour of car lanes which led to the current car-dependency. This can also be reversed). Renewable energies on the other hand, as well as nuclear energy which functions complementary, can phase out fossil fuels while ensuring that the energy

demand is met. Taken the results of the [sixth IPCC climate report](#) into account, this must be done in a fast pace - the quicker fossil fuels are phased out, the better for the planet and humanity.

On an individual level, this also means changing from a throw-away-society to a repairing-society and consuming with awareness (e.g. buying Fair Trade products). Companies - through regulations if necessary - must make it easier to repair their products (especially technology) - whether it is provided as a service when there are more complicated issues or simple replacements such as the display and battery.

From mass consumption to responsible consumption - it won't lead to a decline in the living standard, since the goods remain available and affordable.

There's much more, but you get the idea. It's in our hands, and through democratic means - from organizing and educating on various subjects to voting and people initiatives - this necessary change can be achieved. If a government does too little, they must be put under pressure through protests, petitions and other legal means.

Now one might rightfully ask: *'What about the developing countries? They neither have the technological means nor can draw on accumulated wealth - financially and in assets such as institutions and infrastructure - to do the same.'*

The first step is to reduce the damage where developed countries play a major role, such as deforestation which not only destroys plant life but also wildlife. As it is explained in an article by the [WHO](#): *"Other global environmental changes, such as loss of biodiversity, can have health consequences by increasing instability in disease transmission in animal populations, which are the source of most of the pathogens affecting humans (18). Loss of biodiversity can have other health consequences as well, as a result of the depletion of the genetic resources available for future crop/food production and development of medicines."*

For instance, the maintenance of forests and reforestation could be incentivized by [reducing the debts of developing countries](#): *"The link between debt and deforestation that is suggested in this paper implies that debt-for-nature swaps may have a dual effect on deforestation. First, the contractual agreement is designed to preserve forests as part of the swap. Second, the reduction in debt may itself reduce the pressure to deforest, although this indirect effect is small. Our research provides evidence that reducing debt reduces deforestation, which may be an argument to offer deforesting third-world countries some form of debt relief, and to utilize more fully debt-for-nature swaps as a tool for preserving environmental quality."*

Improving the standard of living and societal [conditions](#) (an older article of the WHO) will also contribute to a healthier environment. Thus being beneficial both for the population and the flora and fauna. Of course, at every point the natives must be included and it shouldn't be done in an imperious manner - that only results in alienation, is counterproductive and undemocratic.

Technology transfer is also required to combat climate change and mitigate the effects of climate change. By providing knowledge and knowhow through cooperation, we are not only combatting climate change but also ensure that every country can fully develop.

Looking back at recent history, a global successful treaty is realistic - if everyone acknowledges the danger it poses and actively participates to avoid it.

The older generation is very likely more familiar with it: the [Montreal Protocol](#).

After it was implemented, 24 nations (over the time 173 more joined) first reduced and then banned chlorine- and bromine-based chemicals. The destruction of the ozone layer would have been catastrophic: *"The destruction of the ozone layer allows more of the Sun's ultraviolet radiation to reach the surface of the planet, increasing the risk of sunburns, skin cancer, and eye damage. The most prominent and infamous sign of depletion is the annual "ozone hole" that forms around the South Pole."*

Through this combined effort, an environmental disaster was prevented. Showing that humanity has the potential and the will to implement what is necessary.

Working Conditions and Worker Rights

The recent [strike of Kellogg's workers](#) in the US has shown that unions are of great importance - and a prime example of [trade unions in Sweden](#).

Unions exist to balance the power between the employees and the employer. Their history is over a century old, and when one looks back at the terrible conditions during the early phase of the industrial revolution, there's a lot to thank the worker movement for and those who fought for their representation in parliaments. It's their task to protect the rights of the worker and extend where possible, making sure that the working conditions aren't being neglected and democratize the working place overall.

As you can already guess, bad working conditions around the world can be solved through strong labour laws that protect the workers (passively) and trade unions which keep the company in check (actively). As it is with other problems, there isn't a one-size-fits-all solution - countries that already have made significant progress, like the aforementioned Sweden, may only need slight improvements while poorer countries have yet to build up such a

strong legal and public support network. For wealthier countries, this also means more transparency and stricter examinations of their multinational companies that exploit them in the first place.

Not just recent history has shown that pressure works, with the difference that over 100 years ago worker strikes sometimes ended up bloody ([Ludlow Massacre](#), USA).

In Germany, for instance, was the growth of the Social Democratic Party reason for Otto von Bismarck to implement an [early social safety net](#) (Health Insurance in 1883, Accident Insurance in 1884, a pension program in 1889 and the Workers Protection Act in 1891).

The worker movements and early socialist politicians laid the foundation of the modern social safety net and democratization of the workplace. Unfortunately, in the 1980s a regressive course was taken due to Ronald Reagan (40th President of the US) and Margaret Thatcher (first female Prime Minister of the UK).

40 years later, the devastating effects are reflected in the [income and wealth inequality](#), bad working conditions and other social illnesses (the worst development occurred in their respective countries, Europe experienced a neoliberalism that was not as quite as severe).

It's not too late to reverse the trend and build on what is left. In those countries which never experienced an economic upswing post-WW2, and are still exploited, the workload is much higher to establish a strong social safety net and worker rights.

By organizing and reviving international solidarity (especially through social awareness), better living conditions for the working class can be achieved around the world.

Basic Needs

Under basic needs I understand access to food, clean water, shelter and healthcare. In other words: all goods and services that are *needed* for a life in dignity (i.e. no destitute).

In already-industrialized countries, covering the basic needs of an individual or family is - theoretically - not a problem since both food and clean water are widely available.

Moreover, the money to build shelter is there. In most countries there exist universal healthcare as well, though it does happen that some fall through due to still-existing gaps (e.g. [Germany](#), source in German). Under these circumstances it is mainly a question of closing the gaps by improving existing laws, establishing a new mechanism or organizing a new service/infrastructure that distributes food and water among everyone (thereby also reducing food waste).

It's another story in developing countries. As it has been [criticized before](#), international aid alone won't do any good as long as nothing is done to build up the necessary infrastructure

to support the basic needs of the population. This must be done in a cooperative manner, not a commanding one. International aid should still be provided, but with the goal to build schools, universities and fund other infrastructure projects. Over a long period of time, self-sufficiency can be achieved (as it is with any modern country, only partially though, since globalization did lead to an improvement of living conditions and some form of interdependence always existed in the history of humanity). Along with the accountability of multinational companies, this paves the way to an own industrialized society where child labour becomes a thing of the past and labour rights are modernized.

Our climate crisis will only be solved, if we treat every country equally. Water shortage, for instance, must be combatted together - both to avoid war and contributing to the welfare of a people in the long-term. It starts by listening to these voices.

Democratization and Human Rights

Democracy, as a system of government, is proven to be the best form of government to represent the people and their will - the latter is not a monolithic expression, various interests from different groups (e.g. religious, political, ethnic) are the ingredients to this colourful receipt. It may not be perfect due to current flaws, depending on the country more or less severe, but a democracy also allows to fix these flaws through various means - be it protests, people initiatives, petitions (e.g. [Switzerland](#)), or else.

It's not only about voting for a party or candidate on the national and local level each election cycle; it's also about the liberties guaranteed by a constitution (civil rights) and state of law. An independent court, separation of powers, freedom of the press and freedom of speech, freedom of information and so on.

When fighting for democratic values its long history shouldn't be forgotten either - from the [French Revolution](#) of 1789 to modern day struggles such as in [Belarus](#).

Lastly, protecting, preserving and expanding democracy is also the best way to conserve and protect knowledge humanity has gathered over millennia. Consequently, a democracy must also be defensive to protect against its enemies while always being vigilant that the own values are not undermined or even destroyed in this battle (from the civil society to the military, it is of utmost importance that these values are shared in order to keep any kind of authoritarianism and tyranny out).

From that you can already see that [human rights](#) and democracy are intertwined.

And here it is where we also come to the unfortunate situation we find ourselves in reality: Not only are their violated in countries which are run by autocrats or near-autocratic rule (e.g. China, [Uyghurs](#)), but also in democracies around the world (e.g. USA -> [NSA](#), [Torture Programs](#), etc.). It therefore also becomes a battle on the home front, a very important one

for a failure in our own democracy to defend these values - or ignoring that they take place - also results in losing any credibility when fighting for it elsewhere (i.e. hypocrisy). *This doesn't mean that whenever you criticize country C for a violation, you have to counter-balance it with criticism of your own country or a close ally of your country.* Otherwise it would become too exhausting with the time and result - in the worst case - in a burnout due to the constant pressure.

How it develops in countries that are currently governed in an authoritarian way is unknown - either these nations try the Chinese way with totalitarianism and chauvinism, or the democratic values gain permanent foothold and manage to get rid off the authoritarian regime. Some may be slower and take decades while others change in a few years. Most importantly: strengthen international democratic solidarity (e.g. if they seek asylum reacting quickly to allow them in) and assist them if possible.

Despite the obstacles that are in front of us, we shouldn't be discouraged by the current situation we find ourselves in. Through continued effort and increasing awareness we shall emerge victorious - both nationally and internationally.

As it was with the monarchs of the time of absolutism, so shall the time of dictatorships and illiberal democracies end. Transparency and further democratization in existing democracies shall put an end to corruption and abuse of power.

It may be a long way until then, but it is achievable.

End

We've got the answers to our issues and, the solutions are well within reach.

As we see more and more people becoming environmentally and socially aware, the problems we face nowadays will be easier to overcome. Democratic forces are confronted with major challenges, but none that are impossible to overcome. There may be setbacks, and sometimes one could lose all hope, but our future isn't set in stone!

(Released: 6th January 2022, 20:56 Uhr/08:56 pm)

Kazakhstan - From 1868 to 2019 and the Protest of 2022

In this entry, we'll learn about the history of Kazakhstan from 1900 to 2021, the geographical location and what led to the current situation.



Illustration 3 - The Flag of Kazakhstan

Geographic Location



Illustration 4 - Image from Wikipedia

Kazakhstan, officially called the Republic of Kazakhstan, is a country located in Central Asia.

It shares borders with Russia in the North and the West, China in the East, and Kyrgyzstan, Uzbekistan and Turkmenistan in the South.

It is the ninth-largest country in world with an area of 2.7 million square kilometres.

Demography

18.8 million people live in Kazakhstan.

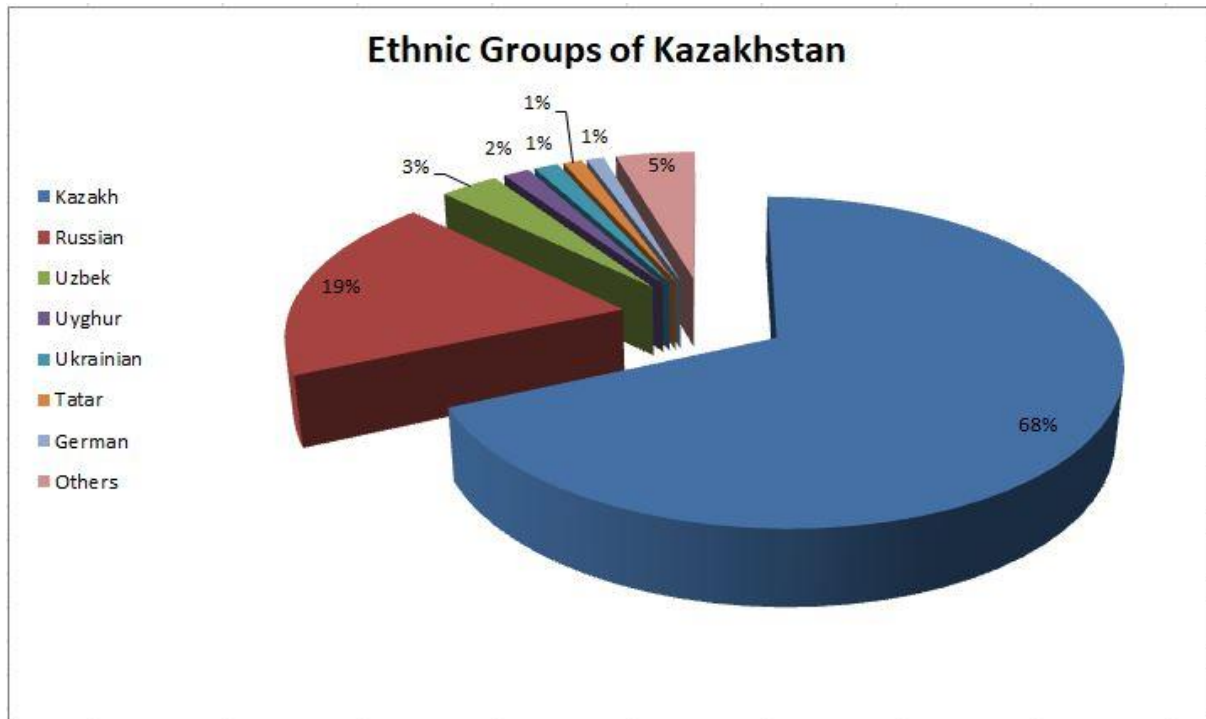


Illustration 5 - As of 2020 (source: Retrieved on 6th August, 2020 - Wikipedia)



Illustration 6 - As of 2020 (source: globalreligiousfutures)

The excel program I used changed the percentage slightly, since the rounding up of the percentages (very likely) didn't result in 100% but a bit above (see link below pie chart).

Recent History

1868-1916

First industrial enterprises are set up after thousands of Russian and Ukrainian peasants were brought to to settle Kazakh lands.

1916

A major anti-Russian rebellion was repressed bloodily - 150,000 people were killed and more than 300,000 fled abroad. It was caused by the conscription of Muslims into the Russian military for service on the Eastern Front during the First World War.

Also known as *Central Asian revolt of 1916* or [Semirechye Revolt](#).

It lasted from 3rd July 1916 to February 1917.

1917

Shortly after the Russian Revolution, a Civil War broke out in Russia.

1920

Kazakhstan becomes an autonomous republic of the USSR. It is called the *Kyrgyz Autonomous Province* until 1925 to distinguish its people from the [Cossacks](#).



Illustration 7 - An illustration depicting a Cossack raid on a Korean Village during the Russo-Japanese War (1904-1905)
The War ended in a victory for Japan

Late 1920s-1930s

Industrialisation and collectivisation of agriculture. In a campaign to settle nomadic Kazakhs and collectivise agriculture, one million people starved to death.

1936

Kazakhstan became a full union republic of the USSR.



Illustration 8 - Flag of the Kazakh Soviet Socialist Republic (24th January 1953 to 4th June 1992)

1940s

Forceful relocation of hundreds of thousands of Koreans, Crimean Tatars, Germans and others to Kazakhstan.

1949

First detonation of a nuclear bomb in eastern Kazakhstan.

1954-1962

The Virgin Land Campaign of [Nikita Khrushchev](#) was implemented in 1953. Its goal was to sharply increase the agricultural production of the Soviet Union. Two million people - mainly Russians - moved to Kazakhstan which led to a drop of ethnic Kazakhs to 30%.



Illustration 9 - A poster stamp of the USSR celebrating the 25th anniversary of the Virgin Land Campaign

1961

On the [Baikonur space launch site](#) in central Kazakhstan, the first manned spacecraft was launched. It took two years to build the launch site; the city of Leninsk was built as well to house thousands of workers and provide their families with schools and other facilities.

1986

Mikhail Gorbachev replaced the leader of the Communist Party of Kazakhstan (CPK) ([Dinmukhamed Kunayev](#), an ethnic Kazakh) with [Gennadiy Kolbin](#) (an ethnic Russian). This led to a protest in Almaty where 3,000 people participated.



Illustration 10 - Dinmukhamed Kunaev served as the First Secretary of the Communist Party of Kazakhstan from 7th December 1964 to 16th December 1986

1989

[Nursultan Nazarbayev](#) (ethnic Kazakh) becomes leader of the CPK. The parliament adopts a new law on language which proclaimed that Kazakh is the state language and Russian a language of "*inter-ethnic communication*".

1990

On the 25th October, Kazakhstan [declares its sovereignty](#).
Nursultan Nazarbayev is elected by the Supreme Soviet as the first president.

August 1991

The [attempted coup against Gorbachev](#)* was condemned by Nazarbayev. Afterwards, the CPK withdraws from the Communist Party of the Soviet Union. A decree is signed by him to close the nuclear test ground Semipalatinsk.

*The coup began on August 18 and ended three days later - without success.

December 1991

Nazarbayev won in the presidential elections uncontested. The country declared its independence from the Soviet Union and subsequently joined the Commonwealth of Independent States (CIS).

1992

Admitted into the United Nations and the Conference on Security and Cooperation in Europe (predecessor of the Organisation for Security and Cooperation in Europe ([OSCE](#))).

1993

A new constitution which increases the powers of the president was adopted. In the same year a large privatisation programme is launched and Kazakhstan ratified the first Strategic Arms Reduction Treaty and the Treaty on the Non-Proliferation of Nuclear Weapons.

1995

An economic and military cooperation pact with Russia is signed and a nuclear free status was obtained. The term of President Nazarbayev is extended until December 2000 and through a national referendum a new constitution was adopted.

1997

Akmola (formerly known as Tselinograd) becomes the new capital of Kazakhstan. Previously, Almaty has been the capital from 1936-1991 and post-Soviet Union from 1991-1997.
Major oil agreement secured with China.

1998

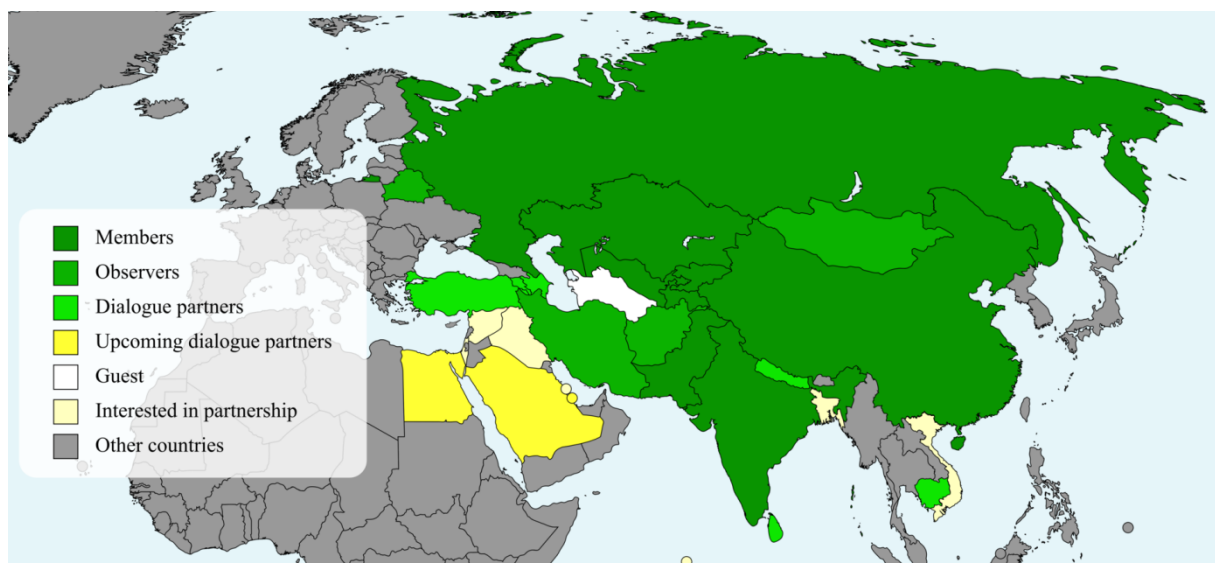
Capital is renamed to Astana.
Through an amendment to the constitution, the presidential term in office is extended from five to seven years as well as the removal of the upper age limit of a president.

2000

Adoption of Economic Security Strategy up to 2010. World Bank praised the economic reforms. After an incursion by Islamist militants in Kyrgyzstan and Uzbekistan, security on all borders was strengthened. A crackdown on Uighurs also occurred after a shoot-out in Almaty.

June 2001

The [Shanghai Cooperation Organisation](#) (SCO) is launched by Kazakhstan, China, Russia, Kyrgyzstan, Uzbekistan and Tajikistan. It aims to fight ethnic and religious militancy and to promote free trade. It emerged from the Shanghai Five (founded in 1996).



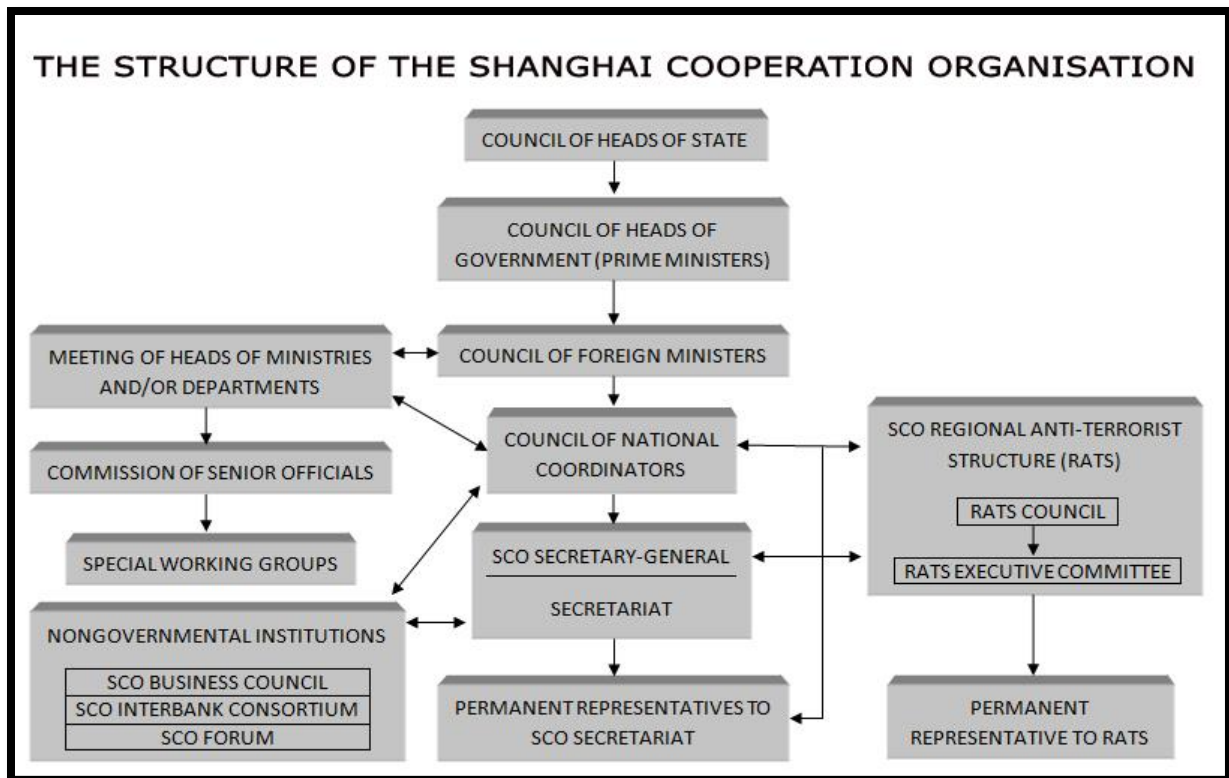


Illustration 11 - Images from Wikipedia

November 2001

President of Kazakhstan purged government of officials who allegedly joined the newly-formed [Democratic Choice](#) reform movement.

December 2001

President Nazarbayev and US President George W Bush held a meeting. A long-term commitment to strategic partnership was declared.

July 2002

Mukhtar Ablyazov, Democratic Choice co-founder and ex-energy minister, was jailed for alleged abuse of office.

August 2002

Galymzhan Zhakiyanov, also a co-founder of Democratic Choice and part of the Opposition, was jailed for allegedly abusing his position as regional governor.

September/October 2004

President Nazarbayev retained control over lower house of parliament. The election was criticized as flawed by international observers.

Zharmakhan Tuyakbay, Parliament speaker, resigned in protest at conduct of voting.

January 2005

One of the country's main opposition parties, the Democratic Choice, is ordered by Court to be dissolved. Accusation against the party that it breached state security by calling for a protest against parliamentary election results.

February 2006

[Altynbek Sarsenbaiuly](#) (opposing figure), his bodyguard and driver were found shot dead outside Almaty.



Illustration 12 - 12 September 1962 – 11 February 2006

June 2009

A law was passed to tighten control over the internet; chat rooms, blogs and public forums count since as mass media. Bloggers could therefore break the law if they expressed their views.

January 2010

First former Soviet state to chair the OSCE [despite criticism](#) of its own democratic credentials.

May 2010

Parliament approved bill which grants Nazarbayev the title "leader of the nation" and immunity from prosecution.

December 2011

In the western oil town of Zhanaozen [a clash between striking workers and the police](#) leaves 16 people dead. A state of emergency is declared by the government.

June 2013

British Prime Minister [David Cameron officially visits Kazakhstan](#). Great Britain is the third largest investor in the oil-rich nation.

January 2015

[Eurasian Economic Union](#) between Russia, Kazakhstan and Belarus comes into force.

KEY TAKEAWAYS

- The Eurasian Economic Union (EAEU) is a free trade agreement that came into being in 2015 to increase economic cooperation and raise the standard of living of its members.
- Member countries include Russia, Armenia, Belarus, Kazakhstan, and Kyrgyzstan.
- Unlike the European Union (EU), the EAEU does not share a common currency.

Illustration 13 - From Investopedia

March 2016

Government banned the use of mobil devices in governments after confidential information was leaked through the mobile messenger app WhatsApp.

May 2016

Dozens of [anti-government protesters](#) are arrested after they held a rally against the controversial land reforms.

March 2017

Constitutional reform that reduces the president's power approved by parliament.

May 2018

Nazarbayev appointed as chairman for life of a newly-strengthened Security Council by the parliament. Thus preparing for his post-presidential role.

March 2019

President Nazarbayev announced [his resignation](#).

April 2019

President [Kassym-Jomart Tokayev](#), former Senate-chairman, announced snap presidential election for 9th June.



Illustration 14 - Kassym-Jomart Tokayev (on the left) with Sergey Lavrov and John Kerry on 13 September 2013

(Timeline by BBC, not everything included from the most recent 15 years to reduce length)

Cause of the Current Protests

The protest-wave began where it started in 2011 too: Zhanaozen. A state of emergency was declared this time as well, and the acting government has resigned.



Illustration 15 - (source: Deutsch Welle)

In 2011, the cause of the protests were low wages of the oil workers. The protests now are linked to the [strong increase in autogas prices](#). At the official level it was explained that this sharp increase was caused by a rise in demand and production shortages.

It isn't the first time that the energy sector had a problem. Last year, the country failed to generate sufficient electricity leading to emergency shutdown. As a consequence, the decision has been made to build the nation's first nuclear power plant.

Food prices have also risen drastically last autumn, prompting the government to prohibit exports on cattle and other, smaller, livestock, as well as potatoes and carrots.

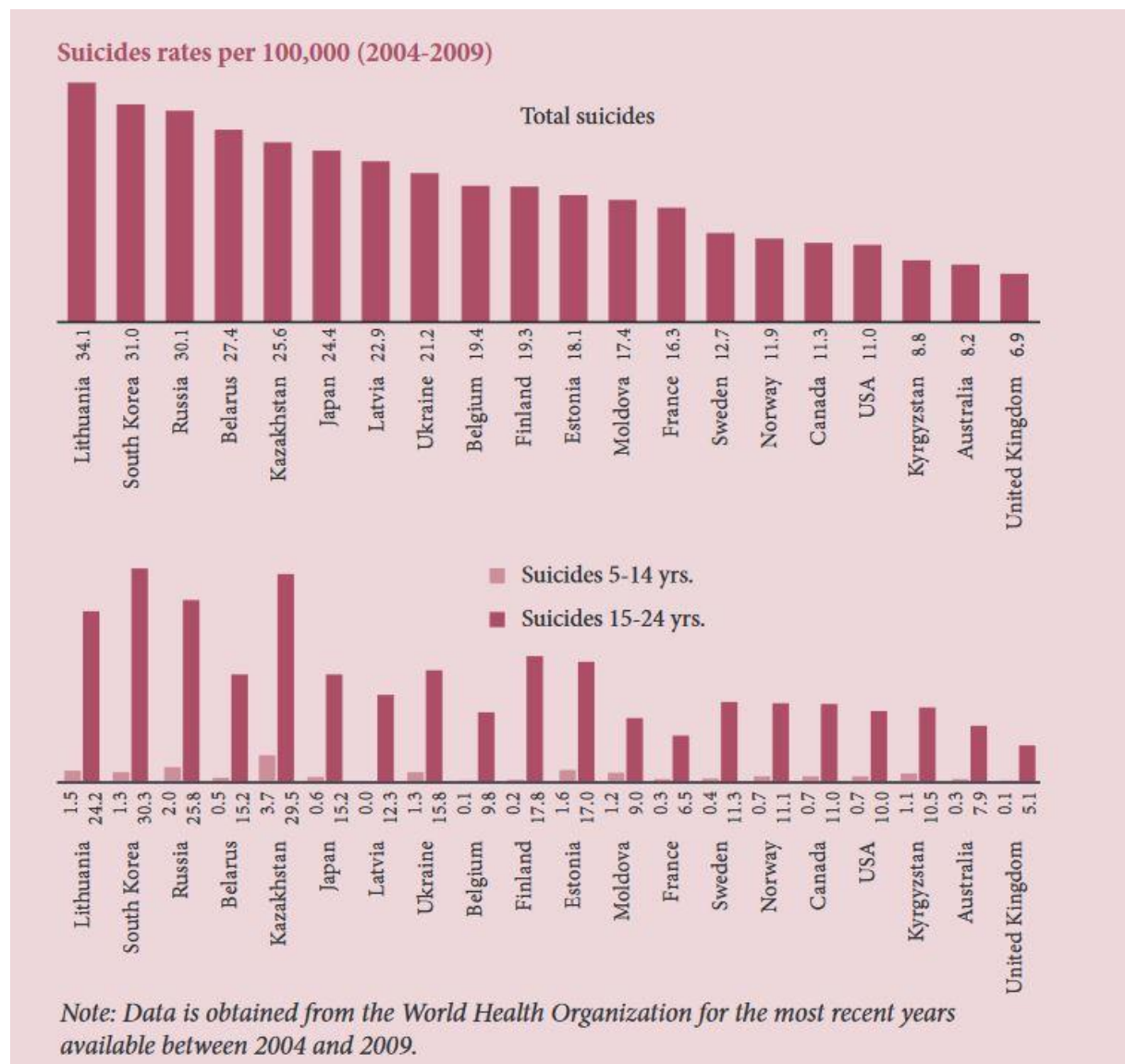
The Guardian lists inequality as a reason as well, as it is stated in [this article](#):

"Beyond the limits of Almaty and the capital city, Nur-Sultan, however, the illusion begins to look threadbare. And the causes behind the [protests](#) currently gripping the central Asian nation come into focus. Average monthly salaries are [less than £450](#) (\$600). Police, doctors, teachers and all kinds of government workers supplement their meagre pay with bribes."

The AP (Associated Press, second link of the quote) mentions following problems:

- Banking System (fell prey to non-performing loans)
- Corruption is rampant
- Financial hardship is widespread
- Ultrarich tycoons

Next to the inequality created by the mass privatization in the 1990s the suicide rate is cited by the Guardian as well ([UNICEF Report](#) ^{PDF}):



While it decreased in the decade that followed, Covid-19 led to a sharp increase again.

Final

Now with the history of Kazakhstan in mind, the political and economic situation can be better understood. Whether more protests are going to occur in the near future depends on the actions taken by the government - as well as Russia which now interferes as well.

In other words: it seems very likely that a course to totalitarianism is taken to keep the government in power, as the firing order and shutdown of the internet already indicate. A possibility, but rather unlikely, is a successful uprising that dethrones the autocratic government in Kazakhstan. That's all speculation, though.

I personally hope that the democratic movement succeeds one day, as well as in other former Soviet states like Belarus.

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(Released: 9th January 2022, 22:57 Uhr/10:57 pm)

The Scientific Lense: Vaccination and Vaccine Hesitancy

In this entry, we'll learn about vaccination (through which phases a vaccine goes before it is approved and distributed) and how vaccine hesitancy can be tackled.

The first topic has already been discussed on an article of mine (science news), therefore it is here an iteration of the section.

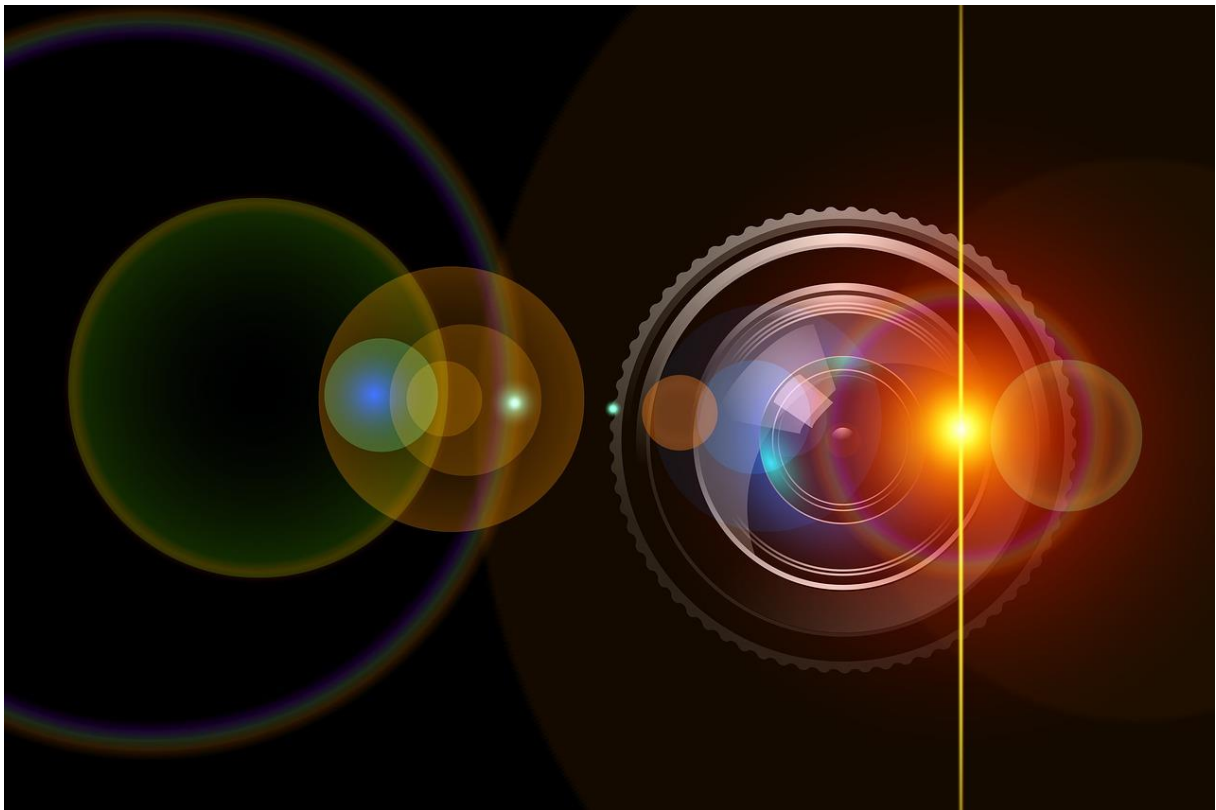


Illustration 16 - Image from Pixabay

Vaccine Clinical Trial Phases

As I did in Science News (21st June, 2021), I'll start with a very short summary that is based on the [ScienceDaily](#) summaries.

In order to ensure safety and efficacy of a new vaccine, clinical trials are conducted. Before a clinical trial is conducted, however, a pre-clinical trial must be completed.

Pre-clinical:

Before human trials; safety and effectiveness are tested and it is overseen by an independent ethics committee.

Phase 1:

Small trials, around 100 volunteers; safety is the main objective, immune response test.

Phase 2:

1,000 to 2,000 volunteers; still mostly safety, but also effectiveness included.

Phase 3:

Final trial before a vaccine is approved, about 10,000 volunteers; primarily focus on efficacy and whether the vaccine actually lowers infection.

Phase 4:

Data is still being collected on its safety and how well it works.

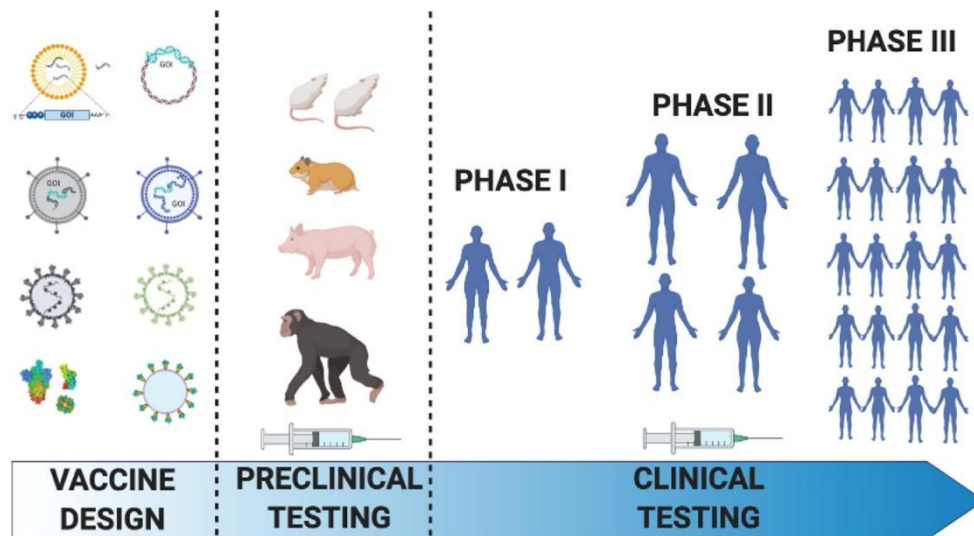


Illustration 17 - Illustration 21 - Image from [ScienceDirect](#)

Now to the more elaborated summary (in tabular form):

Phase	Summary
Pre-Clinical	Before Human Trials <ul style="list-style-type: none">Robust data from laboratory requiredInvestigators and an independent ethic committee must be confident that is both very likely to be safe and effective
Phase 1	Volunteers: ~ 100 Primary Objective: Safety <ul style="list-style-type: none">It is expected to be safe from the animal testingBlood tests are collected from the volunteers to test the efficacy of the vaccine (did an immune response occur?)Multiple doses used to find the ideal dose for later trialsSubjects are healthy with no comorbidities to ensure safety and avoid confounders
Phase 2	Volunteers: 1,000 to 2,000 Primary Objective: Safety (studies of effectiveness also conducted) <ul style="list-style-type: none">The volunteers begin to be more diverse (e.g. broad age range) to better resemble the populationWhile it gives first insights into the actual protection from a pathogen, these studies are not large enough to confirm that it provides protection
Phase 3	Volunteers: 10,000 + Primary Objective: Efficacy (safety still remains a focus) <ul style="list-style-type: none">Shows whether the vaccine significantly lowers infectiousnessSize of volunteers depends on how wide-spread the disease isIn any phase a vaccine can fail to show that it provides sufficient protection; a number of vaccines candidates fail in phase 3 studies
Phase 4	Vaccine has been approved <ul style="list-style-type: none">The approved vaccine is being widely usedData is still being collected on its safety and how well it works

Source: Medical Express (2020-08)
Link: <https://medicalxpress.com/news/2020-08-vaccine-clinical-trial-phases.html>

The [article](#) of Medical Xpress also explains the rather fast pace of the vaccine development: *"In the case of COVID-19, we have been fortunate to see sufficient investment that has enabled planning for all phases of clinical trials to take place at the beginning, allowing the next phase of [clinical trials](#) to commence quickly, so as soon as the data from the previous phase supports it. This has meant that we are seeing vaccine development happen at a rate much faster than ever before without compromising at all on any of the usual processes required to be certain about the [vaccine](#)'s safety, as well as how well it is likely to work."*

A lot of resources were shifted to the search for a vaccine and new programs brought into being such as HHS' Operation Warp Speed (OWS), NIH's Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) partnership, NIH's Rapid Acceleration of Diagnostics (RADx) initiative, and the WHO's Solidarity Vaccine Trial (from the ScienceDirect study: "SARS-CoV-2 vaccines in advanced clinical trials: Where do we stand?").

Source

<https://medicalxpress.com/news/2020-08-vaccine-clinical-trial-phases.html>

Study: Covid-19 vaccine acceptance and hesitancy in low- and middle-income countries

Authors: Julio S. Solís Arce, Shana S. Warren, Niccolò F. Meriggi, et al.

Source: Nature Medicine

Published: 16th July, 2021

Link: <https://www.nature.com/articles/s41591-021-01454-y>

Method of Research

This study covers a large geographic across Africa, Asia and Latin America.

Overall, a total of 44,260 individuals were surveyed.

The measures used in this study have also been employed by other Covid-19 vaccine acceptance studies and follow the recommendations of the WHO Data of Action guidance to allow for meaningful cross-study and cross-country comparisons.

Summary of the Study

A summary was made by the authors as well, also included here (page 2):

(Next page)

Table 1 | Policy summary

Background	We analyze COVID-19 vaccine acceptance and hesitancy and their drivers across 15 survey samples covering 10 LMICs in Asia, Africa and South America, as well as Russia and the United States, comprising a total of 44,260 individuals.
Main findings and limitations	Willingness to take a COVID-19 vaccine is considerably higher in the LMICs in our sample than in the United States and Russia. The personal protective benefit of vaccination is the most frequently cited reason for vaccine acceptance. Concern about side effects is the most commonly cited reason for vaccine hesitancy. Health workers are considered the most trusted sources of guidance about COVID-19 vaccine choices. One limitation of our study is that our data are not representative of all LMICs, and some individual samples are not nationally representative. However, our main findings—of high COVID-19 vaccine acceptance in our LMIC samples relative to the United States and Russia—are consistent across samples and specifications.
Policy implications	Although global vaccine distribution has skewed heavily toward higher-income countries so far, the high levels of vaccine acceptance we identify suggest that prioritizing distribution to LMICs may be an efficient way to achieve immunity on a global scale and prevent novel variants from emerging. Vaccination campaigns should focus on converting positive intentions into uptake, which may require investment in local supply chains and delivery. Engaging health workers to deliver vaccine information, leveraging pro-vaccine norms, and messaging focused on vaccine effectiveness and safety might be effective in addressing remaining hesitancy.

Detailed Findings

Internal research within the Innovations for Poverty Action ([IPA](#)), the International Growth Center ([IGC](#)) and the Berlin Social Science Center ([WZB](#)) was conducted to select studies which are included in their sample.

Given the context of the pandemic, a survey modality (phone) was used that is both safe and appropriate for contexts with limited internet coverage.

	Effective	Safe	Important for children to have	Tuberculosis (BCG)	Diphtheria, tetanus and pertussis (DTP1)	Measles (MCV1)	Percent of parents with any child that was ever vaccinated
Burkina Faso	87	72	95	98	95	88	97
Colombia	83	84	99	89	92	95	95
India	96	97	98	92	94	95	92
Mozambique	87	93	98	94	93	87	95
Nepal	89	93	99	96	96	92	95
Nigeria	82	92	96	67	65	54	95
Pakistan	91	92	95	88	86	75	94
Rwanda	99	97	99	98	99	96	100
Sierra Leone	95	95	99	86	95	93	97
Uganda	82	87	98	88	99	87	98
Russia	67	48	80	96	97	98	96
United States	85	73	87	–	97	90	95

The table presents an overview of vaccination beliefs and incidence across countries in our sample. Columns 2–4 and 8 use data from the Wellcome Global Monitor 2018¹⁴. Column 8 shows the percentage of respondents who are parents and report having had any of their children ever vaccinated. Columns 2–4 show the percentage of all respondents that either strongly agree or somewhat agree with the statement above each column. All percentages are obtained using national weights. Columns 5–7 use data from the World Health Organization on vaccine incidence¹⁵. Columns 5–7 report the percentage of infants per country receiving the vaccine indicated in each column.

Illustration 18 - Supplementary Table 2, page 3

Vaccine Acceptance

- The acceptance rate is 80.3% across all LMIC studies (78.0% median)
- Pakistan and Burkina Faso are ranked the lowest
In Pakistan, the low acceptance rate may be linked to negative historical experiences with foreign-led vaccination campaigns.
In Burkina Faso, the general vaccine hesitancy might be reflected. As it can be seen in Table 2, fewer people believe that vaccines in general are safe (72%) than any other country except Russia (48%).
- Women are generally less willing to accept vaccine than men
- Mixed evidence when it comes to the relationship between age and Covid-19 vaccine acceptance:
 -> In India and Nigeria, for instance, respondents younger than 25 are less willing to take the vaccine while in Mozambique, Pakistan and Rwanda those under the age of 25 are "significantly more willing" (p. 3)

...

Reasons given for Vaccine Acceptance

- Personal protection against Covid-19 (91%)
In the US 94% and Russia 76% - overall the most cited reason
- Family protection is placed in the distant second place (average of 36%)

Reasons for Vaccine Hesitancy

- Concern about side effects (most frequently expressed)
In Sub-Saharan Africa it is the strongest: Uganda (81.5%), Sierra Leone (57.9%)
In Russia that concern is also present (36.8%) and more so in the US (79.3%)
- A lack of concern regarding Covid-19 infection is another factor:
In the United States quite common (39.3%), as well as Pakistan (29.4%)
and Nepal (20.4%)

Most Trusted Source of Guidance (Covid-19 Vaccine)

- The health system is seen as the most trustworthy source (48.1% on average)
An exception is Rwanda (see page 7, Figure 3)
- Health workers are cited most often Sierra Leone (89.3%), Nigeria (58%) and Burkina Faso (51.6%)
-> The trust in Sierra Leone's health workers and Health Ministry may be reflected by the investments made in public health following the 2014-2015 Ebola epidemic
- Countries that cited family and friends as the most trusted source are Colombia (36.6%), Nepal (35.6%), Russia (28.1%) and Burkina Faso (18.4%)
- Neither religious leaders nor celebrities are seen as top sources of guidance
-> Exception being Nepal where 16.1% trust famous people

Other

- In Rwanda, 34% of the respondents would trust 'themselves' the most for guidance
- In the US, Joe Biden was cited with 14% as the most trusted source (due to his position as president-elect, he was excluded from the government category)

Persuasion Campaigns - Approaches proposed by the Authors

In order for herd immunity to be achieved, vaccination must be administered to a large majority of the population. While policymakers and stakeholders must tailor their strategy specifically to the needs and problems of their respective country, three implications are highlighted.

Implication	Information
1)	Guidance of practitioners with the most relevant knowledge and expertise <ul style="list-style-type: none"> ❖ High levels of trust in health workers -> Communication strategies involving local health workers may be particularly effective in combating remaining hesitancy ❖ As the first group to receive vaccines, health workers are able to share their experience (credible experiences) ❖ Even though celebrities were rarely identified as the most trusted source, their endorsements have proven effective in other contexts and might complement a strategy that focuses mainly on health workers
2)	Specific Content of Vaccine Messaging <ul style="list-style-type: none"> ❖ Since most respondents were concerned about side effects and vaccine efficacy, the messaging before a large scale vaccination campaign rollout should highlight the high efficacy rate of Covid-19 vaccines in reducing or eliminating disease, hospitalizations and death ❖ Accurate information about potential side effects; this also includes rarity of severe side effects which may have contributed to vaccine hesitancy due to widespread media coverage
3)	Messaging Strategies focusing on Women and Subpopulations (Due to lower vaccine acceptance among women than men) <ul style="list-style-type: none"> ❖ In Latin America, recent work has shown that providing basic information about the vaccines was particularly effective in persuading hesitant women ❖ Campaigns to address the concerns of other groups with respect to age, gender and education -> additional research is required

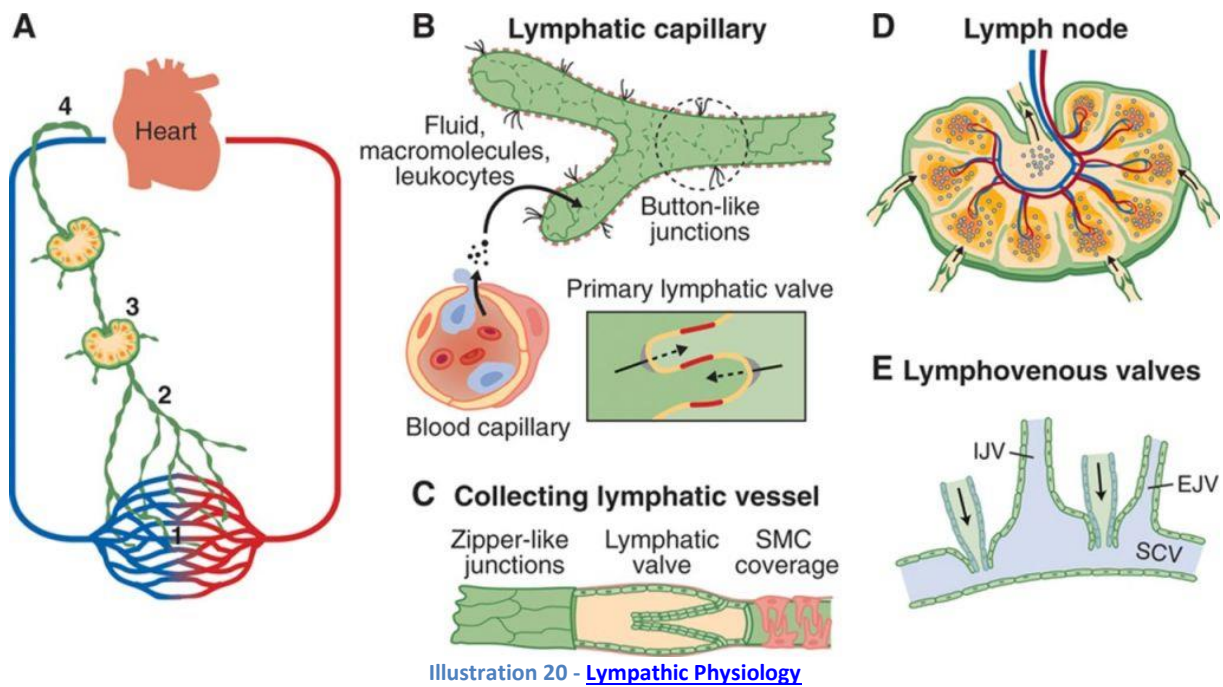
Illustration 19 - page 8 of the study

Considering the general pro-vaccination stance of many LMIC citizens, the availability of vaccines can increase the uptake considerably. In Colombia and Nepal, where family and friends are viewed as an important source of advice, this might yield particularly strong.

The general acceptance of vaccines will be of key importance in the future, both for keeping old diseases in the graveyard ([such as smallpox](#), eradicated in 1980 after a 20-year vaccination campaign of the WHO) and mitigating the effects of current diseases.

Another example of an effective vaccination campaign is polio which mostly affects children at the age of 3-8 years. The virus spreads from the lymph vessel and bloodstream and infects the nerve cells. Since children are still in their growth phase, the growth disturbances can lead to paralysis and damages to joints. **Since 1988, the amount dropped from 350,000 to 33 in 2018 - [a decline of over 99%](#).**

...



I therefore end this blog entry with a section at the end I find important:

"Social signaling of positive attitude towards vaccines may help shift social norms toward even greater immunization acceptance and uptake in the community at large. As with messaging, policymakers should consider designing and evaluating social mobilization strategies targeted toward more hesitant subgroups." (p. 8)

Note: I still recommend reading the study, since I couldn't include all the details in the summary.

(Released: 16th January 2022, 21:12 Uhr/09:12 pm)

Science News #012

In Today's Science News, we will learn about a new development in quantum technology; that our ancestors who lived over 100,000 years ago had a higher cognitive intelligence and how to recognize predatory publishers. (Important Addendum added)

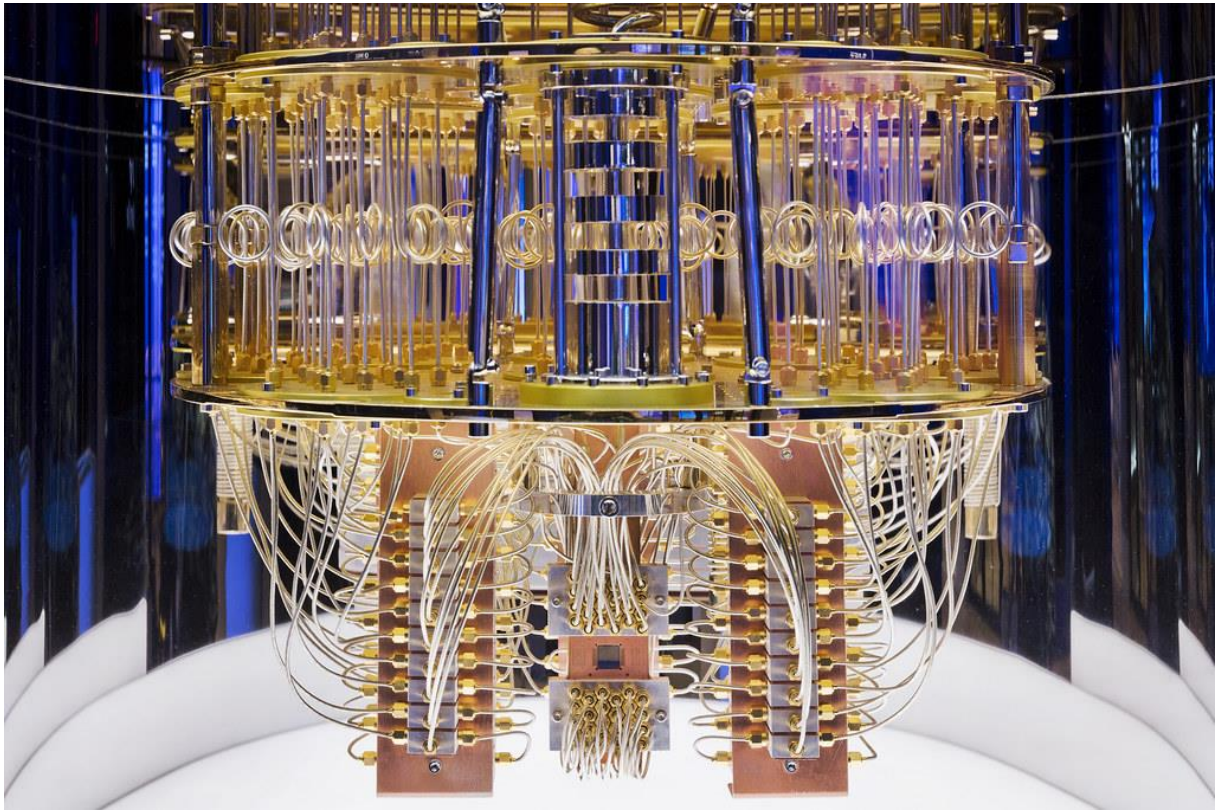


Illustration 21 - Quantum System (source: Flickr)

Article 1: Researchers set record by preserving quantum states for more than 5 seconds

SD-Date: 2nd February, 2022

Et-Date: 5th February, 2022

Science-Daily Summary: *"A team of researchers has maintained a qubit coherence time for a record five seconds. The qubits are made from silicon carbide, widely found in lightbulbs, electric vehicles and high voltage electronics."*

Background

The one or other reader certainly already heard about quantum science and its potentials - from hacker-proof communication networks to quantum computers that could accelerate new drug discovery. However, until now there have been two common challenges:

- 1) researchers have grappled with how to easily read the information held in the qubits;
- 2) the short-term memory time which is usually between microseconds or milliseconds.

Research & Problem Solving

The material chosen by the researchers was silicon carbide, as the ScienceDaily summary already points out. Since it is a material that is already widely used, scaling it up is easier. Now to the two challenges that were solved by the research team.

1) The usual procedure to readout qubits is by addressing them with lasers and measure the light emitted back. However, it requires to detect single particles of light (photons) very efficiently. The researchers decided to use carefully designed laser pulses in order to add single electrons to the qubits, depending on their quantum state either 0 or 1. Afterwards, the qubit was readout as before - with a laser.

This approach is explained by the co-author of the paper, University of Chicago graduate student Elena Glen: "By converting our fragile quantum state into stable electronic charges, we can measure our state much, much more easily. With this signal boost, we can get a reliable answer every time we check what state the qubit is in. This type of measurement is called 'single shot readout,' and with it, we can unlock a lot of useful quantum technologies."

2) Another problem with qubits is the fragility of their quantum state. The qubits easily lose information due to noises in their environment. Now that they had the single-shot readout, they focused on making their quantum state last as long as possible.

First the researchers purified the silicon carbide to reduce said noises in the environment. Then they applied a series of microwave pulses to the qubit and were able to extend the amount of time the qubits preserved their information (concept known as 'coherence'). In simpler terms, as it is explained in the article as well: it is like hitting the undo button on qubits which erases any error that may have happened between the pulses.

5 seconds, while a record in this field, sound extremely short to us. Unlike us, however, the information would travel at the speed of light and that's enough to send a signal to the moon and back (that's [384,400 km](#) back and forth). Moreover, over 100 million quantum operations can be performed before the quantum state is lost.

And in case anyone is interested, here's the [3D-structure of silicon carbide](#):

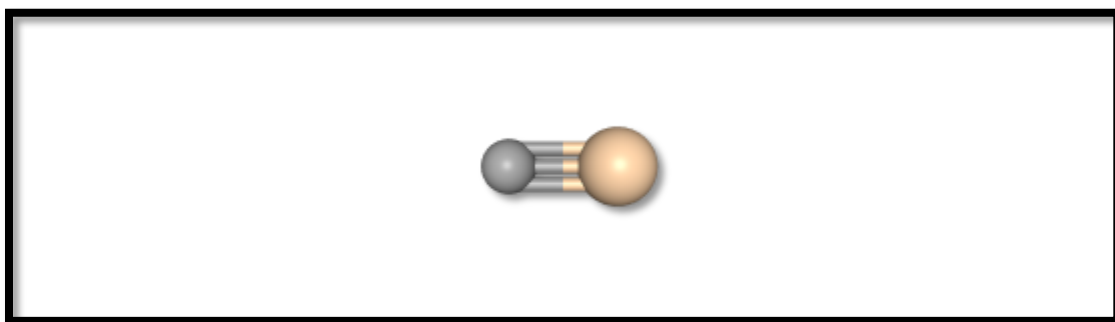


Illustration 22 - Molecular Formula: SiC or CSi

Source

<https://www.sciencedaily.com/releases/2022/02/220202153853.htm>

Article 2: Early humans placed the hearth at the optimal location in their cave -- for maximum benefit and minimum smoke exposure

SD-Date: 1st February, 2022

Et-Date: 6th February, 2022

ScienceDaily-Summary: "A new study provides evidence for high cognitive abilities in early humans who lived 170,000 years ago. Researchers discovered that the early humans who occupied a cave had placed their hearth at the optimal location -- enabling maximum utilization of the fire for their activities and needs while exposing them to a minimal amount of smoke."

Method of Research

In this study, the research team around PhD student Yafit Kedar and Prof. Ran Barkai used their smoke dispersal model on an extensively studied prehistoric site - the Lazaret Cave in southeastern France. Early humans inhabited the cave around 170,000 and 150,000 years ago. Said software that was used in this study also includes the air circulation in caves and a simulator of smoke dispersal in closed space.

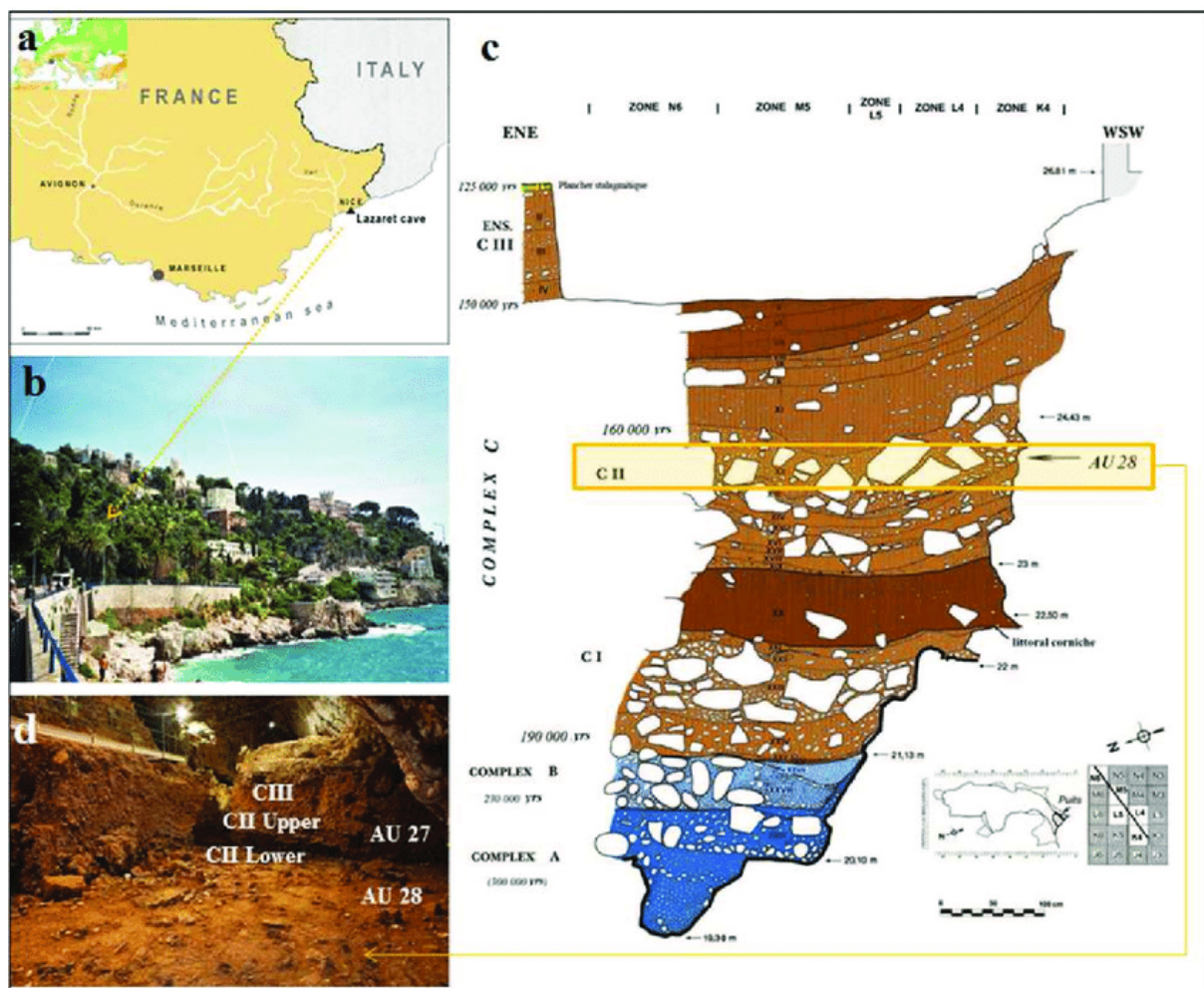


Illustration 23 - a) shows the location of the Lazaret cave in France; b) the yellow arrow points to the cave in Nice, France; c) excavated part of the cave, AU 28 marked with a yellow rectangle - the section that is now exposed; d) illustrates the different layers and the excavated floor

(source: [Archaeozoological analyses of large mammals from the prehistoric cave site of Lazaret, France: A case study of Archaeostratigraphic Unit 28](#))

In order to understand why our pre-historic occupants have chosen the spots in the cave, the researchers conducted smoke simulations for 16 hypothetical hearth locations inside the 290 m² cave. For each scenario they analyzed the smoke density throughout the cave by using thousands of simulated sensors placed 50 cm apart from the floor to a height of 1.5 m. Additionally, to understand the health implications, the team used the average smoke exposure recommendations by the WHO.

Table 15. Summary of indoor AQGs for selected pollutants

Pollutant	Critical outcome(s) for guideline definition	Guidelines	Comments
Benzene	<ul style="list-style-type: none"> Acute myeloid leukaemia (sufficient evidence on causality) Genotoxicity 	<ul style="list-style-type: none"> No safe level of exposure can be recommended Unit risk of leukaemia per 1 µg/m³ air concentration is 6 × 10⁻⁶ The concentrations of airborne benzene associated with an excess lifetime risk of 1/10 000, 1/100 000 and 1/1 000 000 are 17, 1.7 and 0.17 µg/m³, respectively 	–
Carbon monoxide	Acute exposure-related reduction of exercise tolerance and increase in symptoms of ischaemic heart disease (e.g. ST-segment changes)	<ul style="list-style-type: none"> 15 minutes – 100 mg/m³ 1 hour – 35 mg/m³ 8 hours – 10 mg/m³ 24 hours – 7 mg/m³ 	–
Formaldehyde	Sensory irritation	0.1 mg/m ³ – 30-minute average	The guideline (valid for any 30-minute period) will also prevent effects on lung function as well as nasopharyngeal cancer and myeloid leukaemia
Naphthalene	Respiratory tract lesions leading to inflammation and malignancy in animal studies	0.01 mg/m ³ – annual average	The long-term guideline is also assumed to prevent potential malignant effects in the airways
Nitrogen dioxide	Respiratory symptoms, bronchoconstriction, increased bronchial reactivity, airway inflammation and decreases in immune defence, leading to increased susceptibility to respiratory infection	<ul style="list-style-type: none"> 200 µg/m³ – 1-hour average 40 µg/m³ – annual average 	No evidence for exposure threshold from epidemiological studies
Polycyclic aromatic hydrocarbons	Lung cancer	<ul style="list-style-type: none"> No threshold can be determined and all indoor exposures are considered relevant to health Unit risk for lung cancer for polycyclic aromatic hydrocarbon mixtures is estimated to be 8.7 × 10⁻⁵ per ng/m³ of Benzo[a]pyrene (BaP) The corresponding concentrations for lifetime exposure to BaP producing excess lifetime cancer risks of 1/10 000, 1/100 000 and 1/1 000 000 are approximately 1.2, 0.12 and 0.012 ng/m³, respectively 	BaP is taken as a marker of the polycyclic aromatic hydrocarbon mixture
Radon	Lung cancer Suggestive evidence of an association with other cancers, in particular leukaemia and cancers of the extrathoracic airways	<ul style="list-style-type: none"> The excess lifetime risk of death from radon-induced lung cancer (by the age of 75 years) is estimated to be 0.6 × 10⁻⁵ per Bq/m³ for lifelong non-smokers and 15 × 10⁻⁵ per Bq/m³ for current smokers (15–24 cigarettes per day); among ex-smokers, the risk is intermediate, depending on time since smoking cessation The radon concentrations associated with an excess lifetime risk of 1/100 and 1/1000 are 67 and 6.7 Bq/m³ for current smokers and 1670 and 167 Bq/m³ for lifelong non-smokers, respectively 	WHO guidelines provide a comprehensive approach to the management of health risk related to radon
Trichloroethylene	Carcinogenicity (liver, kidney, bile duct and non-Hodgkin's lymphoma), with the assumption of genotoxicity	<ul style="list-style-type: none"> Unit risk estimate of 4.3 × 10⁻⁷ per µg/m³ The concentrations of airborne trichloroethylene associated with an excess lifetime cancer risk of 1:10 000, 1:100 000 and 1:1 000 000 are 230, 23 and 2.3 µg/m³, respectively 	–
Tetrachloroethylene	Effects in the kidney indicative of early renal disease and impaired performance	0.25 mg/m ³ – annual average	Carcinogenicity is not used as an end-point as there are no indications that tetrachloroethylene is genotoxic and there is uncertainty about the epidemiological evidence and the relevance to humans of the animal carcinogenicity data

Illustration 24 - Source: Evolution of WHO air quality guidelines - past, present, future (PDF)

Four activity zones were mapped in the cave for each hearth:

"a red zone which is essentially out of bounds due to high smoke density; a yellow area suitable for short-term occupation of several minutes; a green area suitable for long-term occupation of several hours or days; and a blue area which is essentially smoke-free."

Findings

- At the back of the cave, the exposure to smoke is minimal
- However, the area with slow smoke density was relatively distant from the hearth
An explanation was given why: the early humans needed a balance between a place to work, cook, eat, sleep and get together while being minimally exposed to smoke; based on this, the hearth chose the optimal place
- In the 25 m² that are optimal for the location of the hearth in the cave, the early humans did place their hearth at the optimal location

Professor Barkai concluded, that the early human's ability to choose the optimal location reflects their 'ingenuity, experience, and planned action, as well as awareness of the health damage caused by smoke exposure'. Furthermore, the simulation program used for this study can assist archaeologists at excavations sites to look for the optimal location for hearths and activity areas.

Source

<https://www.sciencedaily.com/releases/2022/02/220201074539.htm>

Article 3: Predatory journals: no definition, no defence

Nature-Date: 11th December, 2019

Et-Date: 6th February, 2022

Introduction: As you can tell from date of the article, it is not 'news' per se. Due to the importance for the scientific community and its readership, I included it in this entry. Until then, there was a lack of a clear definition which was troublesome. Consequently, a discussion was set up to reach a definition in order to tackle this problem. It took 12 hours of discussion, 18 questions and 3 rounds to reach. Here the results.

Threat of Predatory Journals

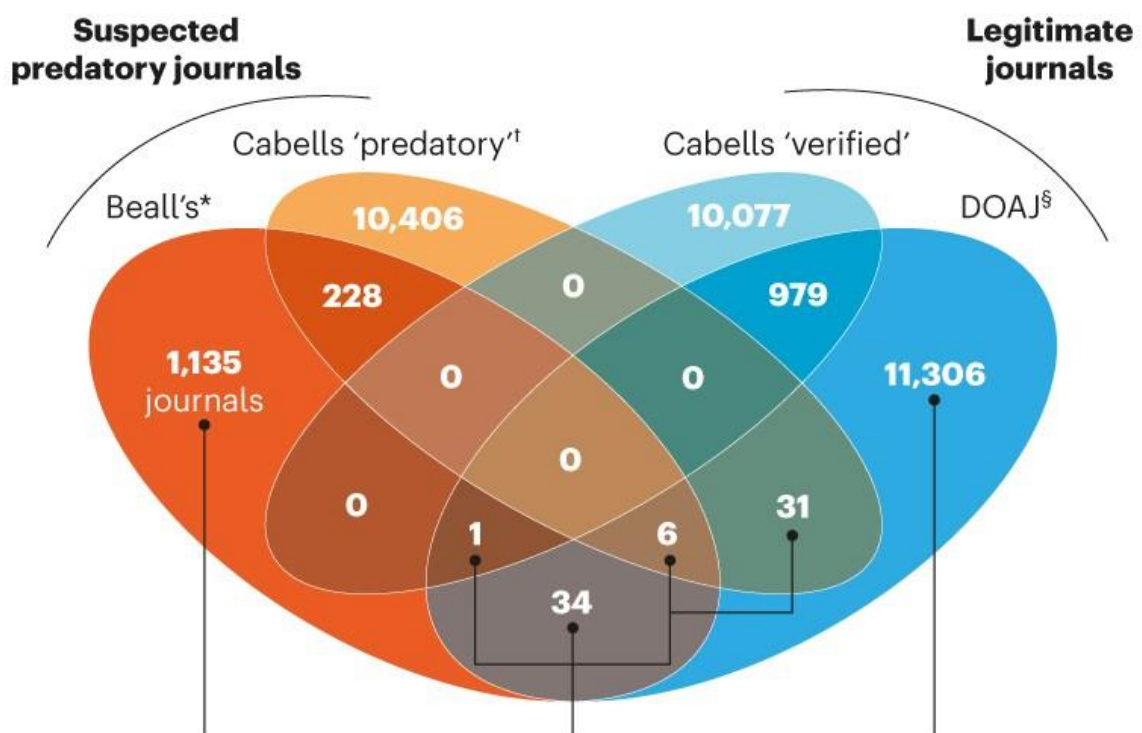
There's a threat for both scientists who seek to publish their works and readers who seek information. While they accept articles for publication, they don't perform any promised quality checks for issues like plagiarism and ethical approval. However, naive readers are not the only victims of this scheme. One study in Italy that focused on 46,000 researchers found that 5 % of them (2,300 researchers) published their works in such outlets. A separate analysis showed that these predatory publishers collected millions of dollars in publication fees that are ultimately paid for by funders such as the US National Institutes of Health (NIH).

Part of the problem is the mentioned 'publish-or-perish culture', as well as a 'lack of awareness of predatory publishing and difficulty in discerning legitimate from illegitimate publications'. These problems create an environment for predatory journals to exist.

While it has been known for some time when the article of Nature was published, the predatory journals have proven to be quite adaptable and penetrated existing lists (see graphic below).

NO LIST TO RULE THEM ALL

Assessments of which journals are likely to be predatory or legitimate do not tally, and titles can appear in both categories. There is no way to know which journals were considered for a list but left off, or which were not considered.



Beall's list highlighted the issue of predatory journals, but faced criticism over transparency and legal threats from listed titles. It ceased operation in 2017.

Some journals deemed legitimate by the DOAJ were deemed predatory by Beall's and/or Cabells lists.

The DOAJ relies mainly on information from publishers. It regularly purges titles that do not meet quality criteria.

*Informally assessed by University of Colorado Denver librarian Jeffrey Beall in ~2008–17; †Pay-to-access lists from Cabells, a scholarly analytics company; §The Directory of Open Access Journals, a community-curated list requiring journal best practices such as peer review and statements on author fees and licensing.

Definition

The definition reached after the long discussion was as follows: *“Predatory journals and publishers are entities that prioritize self-interest at the expense of scholarship and are characterized by false or misleading information, deviation from best editorial and publication practices, a lack of transparency, and/or the use of aggressive and indiscriminate solicitation practices.”*

Details

These predatory journals are characterized by the following criteria:

- **False or misleading information**
Meaning: contradictory statements, fake impact factors, incorrect addresses, misrepresentations of the editorial board, false claims of indexing or membership of associations and misleading claims about the rigour of peer review.
- **Deviation from best editorial and publication practices**
Meaning: the standards set out in a joint statement by the Principles of Transparency and Best Practice in Scholarly Publishing, issued by the DOAJ, the Open Access Scholarly Publishers Association, COPE and the World Association of Medical Editors.
Instances: no retraction policy, not specifying a Creative Common license in an open-access journal or an unprofessional looking website (e.g. grammar mistakes).
- **Lack of transparency**
Meaning: predatory publishers often fail to provide contact information or details about their processing charges (more detailed explanation in the article).
- **Aggressive, indiscriminate solicitation**
Meaning: repeated e-mails with an excessively flattering tone, and a clear warning sign is when the invitee's expertise is outside the journals scope.

Note: Only summarized, for the full explanation see article which I linked to at the end.

Steps to the Solution

While the threat has already been recognized and counter-measures have been taken, there's still much to do.

"Efforts to fight predatory publishing require collaboration and support. Organizations, researchers and governments have started to respond. To name just a few, in 2017, the NIH released a statement encouraging researchers it funds to publish in reputable journals. India's University Grants Commission has created a reference list of respectable journals and is currently [working to revise academic publication incentives and develop a training course](#) to reinforce the message. In November 2018, COPE held a forum on predatory publishing to examine problems and solutions."

...

Nature explains in the article also their next steps:

- 1) Present definition and make educational resources available in multiple languages and how to get involved
- 2) Establishing an international observatory to compile data on the problem (tracks the number of publications in predatory journals by discipline and geography)
- 3) Cooperation with funders, institutions, patients and other stakeholders to assess journal quality
- 4) A digital tool is sought to achieve these goals (funding)

And, of great importance: the efforts to counter predatory publishing need to be constant and adaptable.

Source

<https://www.nature.com/articles/d41586-019-03759-y>

Addendum 2022-03-29

On February 27, 2022, the approved version of the Sixth Assessment Report of the IPCC was released. As you know as well, three days after the invasion of Ukraine by Russia began. Hence it wasn't on my radar. Retroactively, I want to correct this and thus add it as an addendum (for now, later on the report will be matter of new blog entries).

As it is stated by the scientists who have written and finalized the report: *"The cumulative scientific evidence is unequivocal: Climate change is a threat to human well-being and planetary health. Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all. (very high confidence)"* (p. 37, SPM.D.5.3.)

You can download the 'Summary for Policymakers' here:

<https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/>

It is 37 pages long and easy to read.

Thank you for your time. Due to the importance of said topic, I wanted to include it so that it gains traction. Climate change can be mitigated, and it must be mitigated. Information is key, knowing what faces us is the first step to effectively combat it. Consequently, it is of great importance to spread the knowledge.

We still have time to prevent the worst, future generations who do not have a say are just as important as those who exist now. Without a doubt it is going to be an enormous challenge, however, as it is with climbing a mountain, you do it step by step - wandering from one lodge to another until you reach the summit. By internalizing the intermediate objectives and focusing on them, the overall goal of climbing the mountain can be achieved.

Until next time, have a nice day!

(Released: 6th February 2022, 15:52 Uhr / 03:52 pm)

Death Blow to Minsk II - What Now?

At 9:05 pm Vladimir Putin officially recognized Luhansk and Donetsk - both occupied by paramilitary pro-Russian forces since 2014. Whatever the governments in France and Germany hoped to achieve through diplomacy has utterly failed. So, the questions arises:

What shall be done?



Minsk II

Before we move on to the question how to deal with Vladimir Putin and his government, here the Minsk II agreement of the 12th February, 2015.

- 1.** Immediate and comprehensive ceasefire in certain areas of the Donetsk and Luhansk regions of Ukraine and its strict implementation as of 15 February 2015, 12am local time.
- 2.** Withdrawal of all heavy weapons by both sides by equal distances in order to create a security zone of at least 50 km wide from each other for the artillery systems of caliber of 100 and more, a security zone of 70 km wide for MLRS and 140 km wide for MLRS "Tornado-S", Uragan, Smerch and Tactical Missile Systems (Tochka, Tochka U):

- for the Ukrainian troops: from the de facto line of contact;
- for the armed formations from certain areas of the Donetsk and Luhansk regions of Ukraine: from the line of contact according to the Minsk Memorandum of Sept. 19th, 2014;

The withdrawal of the heavy weapons as specified above is to start on day 2 of the ceasefire at the latest and be completed within 14 days.

The process shall be facilitated by the OSCE and supported by the Trilateral Contact Group.

- 3.** Ensure effective monitoring and verification of the ceasefire regime and the withdrawal of heavy weapons by the OSCE from day 1 of the withdrawal, using all technical equipment necessary, including satellites, drones, radar equipment, etc.

4. Launch a dialogue, on day 1 of the withdrawal, on modalities of local elections in accordance with Ukrainian legislation and the Law of Ukraine "On interim local self-government order in certain areas of the Donetsk and Luhansk regions" as well as on the future regime of these areas based on this law.

Adopt promptly, by no later than 30 days after the date of signing of this document a Resolution of the Parliament of Ukraine specifying the area enjoying a special regime, under the Law of Ukraine "On interim self-government order in certain areas of the Donetsk and Luhansk regions", based on the line of the Minsk Memorandum of September 19, 2014.

5. Ensure pardon and amnesty by enacting the law prohibiting the prosecution and punishment of persons in connection with the events that took place in certain areas of the Donetsk and Luhansk regions of Ukraine.

6. Ensure release and exchange of all hostages and unlawfully detained persons, based on the principle "all for all". This process is to be finished on the day 5 after the withdrawal at the latest.

7. Ensure safe access, delivery, storage, and distribution of humanitarian assistance to those in need, on the basis of an international mechanism.

8. Definition of modalities of full resumption of socioeconomic ties, including social transfers such as pension payments and other payments (incomes and revenues, timely payments of all utility bills, reinstating taxation within the legal framework of Ukraine). To this end, Ukraine shall reinstate control of the segment of its banking system in the conflict-affected areas and possibly an international mechanism to facilitate such transfers shall be established.

9. Reinstatement of full control of the state border by the government of Ukraine throughout the conflict area, starting on day 1 after the local elections and ending after the comprehensive political settlement (local elections in certain areas of the Donetsk and Luhansk regions on the basis of the Law of Ukraine and constitutional reform) to be finalized by the end of 2015, provided that paragraph 11 has been implemented in consultation with and upon agreement by representatives of certain areas of the Donetsk and Luhansk regions in the framework of the Trilateral Contact Group.

10. Withdrawal of all foreign armed formations, military equipment, as well as mercenaries from the territory of Ukraine under monitoring of the OSCE. Disarmament of all illegal groups.

11. Carrying out constitutional reform in Ukraine with a new constitution entering into force by the end of 2015 providing for decentralization as a key element (including a reference to the specificities of certain areas in the Donetsk and Luhansk regions, agreed with the representatives of these areas), as well as adopting permanent legislation on the special status of certain areas of the Donetsk and Luhansk regions in line with measures as set out in the footnote until the end of 2015. [Note]

12. Based on the Law of Ukraine "On interim local self-government order in certain areas of the Donetsk and Luhansk regions", questions related to local elections will be discussed and agreed upon with representatives of certain areas of the Donetsk and Luhansk regions in the framework of the Trilateral Contact Group. Elections will be held in accordance with relevant OSCE standards and monitored by OSCE/ODIHR.

13. Intensify the work of the Trilateral Contact Group including through the establishment of working groups on the implementation of relevant aspects of the Minsk agreements. They will reflect the composition of the Trilateral Contact Group.

Source: [Bundeszentrale für politische Bildung](#) (bpb)

What shall be done?

Before Putin officially recognized it, the [Russian Duma requested](#) for Luhansk and Donetsk to be recognized as independent regions. A few days later, on the 21st February on 9:05 pm, it was reported by the AFP that Vladimir Putin sided with the Duma - thus he effectively terminated the Minsk II agreement.

The diplomatic route has therefore failed - this doesn't mean war is to be declared; sanctions must now be the weapon of choice as well as supporting Ukraine even stronger. By stronger I mean with military equipment, offensive and defensive weapons likewise. It has already been done, but now it is important that Germany and France do it as well. Moreover, Europe must now more than ever follow the path of energy independence from Russia. Unlike some German politicians like to think - in what one can describe almost as delusional thinking -, Nordstream 2 isn't a purely commercial project. Gazprom is under the influence of Putin's regime and can easily be used for blackmailing. Instead of further relying on fossil fuels and an authoritarian regime, Germany and the rest of Europe need to invest in renewable energies and nuclear energy (where necessary).

Regarding the sanctions of Russia:

- Freeze the assets of the oligarchs
- Put those oligarchs under house arrest who live elsewhere in Europe
- Stop trade with Russia (**essential products such as food and medicine excluded!**)
- Deny Russian ships entry to Europe's ports (**limitations:** see essential products)
- Deny Russia Today to operate in EU-member countries

These are just some possible sanctions, the main target should be the oligarchs in Putin's regime who came into existence under Boris Yeltsin and benefit most from the authoritarian regime. And as already mentioned in the brackets: neither food nor medicine or any other essential product which is vital for the survival of the Russian people are to be reduced/stopped. That'd not only be inhumane, but also unnecessarily cruel and unjust.

The [four main exports](#) of Russia are:

- Crude Petroleum (\$123 billion)
- Refined Petroleum (\$66.2 billion)
- Petroleum Gas (\$26.3 billion)
- Coal Briquettes (\$17.6 billion)

It mainly exports - in Europe - to the Netherlands (\$41.7 billion), Germany (\$18.9 billion) and Italy (16.7\$ billion). Consequently, it is a task of theirs too to implement sanctions.

Putin and the oligarchs must always be the main target of the sanctions. For the ordinary Russian there's nothing to gain from this geopolitical struggle, the inequalities and societal problems remain.

It's an attempt of the regime to distract from the domestic problems, carried out by a few powerful individuals at the top to maintain their influence and wealth created through decades of corruption.

Just recently the organization [Memorial was banned](#) by Russian courts. For those who don't know: *"Memorial is Russia's oldest and most prominent human rights organization, established to investigate the millions murdered under the direction of Russian dictator Josef Stalin and campaign for the rights of political prisoners and the politically oppressed. It was founded in the late 1980s by Nobel Peace Prize laureate Andrei Sakharov and other Soviet-era dissidents."*

On a final note

The aggression of the Russian government doesn't justify any discriminatory treatment or physical and verbal violence against Russian immigrants. They are not responsible for the actions of Vladimir Putin and his clique in the Kremlin.

This needs to be said because as the Covid-19 pandemic has already shown, hatred fueled by ignorance and bigotry led to attacks on Asian immigrants or natives with Asian descent.

Whether it is the rhetoric or an act of verbal or physical violence, both need to be combatted.

(Released: 21st February 2022, 22:53 Uhr / 10:53 pm)

Interesting Facts (Proto)

In this new category, I write about various interesting facts (from historic to scientific ones, or whatever I may come across while researching about topics for longer entries or while reading). Today we learn about the rise of Sargon of Akkad and female soldiers in the Prussian army during the liberation war of 1813-1814.

This is going to be a proto-version, which means a test entry to determine how it is received and whether I like this kind of format.



Illustration 25 - Image from Pixabay

History

Nr. 1: The Rise of Sargon and Fall of Lugalzagesi (ca. 2375 BCE to 2350/2325¹ BCE)

[Lugalzaggisi](#) began his career as city prince of Umma. He defeated and conquered the territories of numerous princes, among them Urukagina of Lakash, Enschakuschana² of Uruk and Ur-Zababa of Kisch. After he united all of Sumer (South Mesopotamia), he extended his dominion to the Mediterranean coast. His rule would last for 25 years.

Around 2325 BCE³, a man named Sargon (in akkadian: Scharrum-kin) defeated Lugalzaggisi militarily and inherited the vast territory. Sargon of Akkad founded the first Semitic dynasty and was later on considered to be the founder of Mesopotamian military tradition. Depending on the version of the Sumerian royal inscription, his reign either lasted 40, 55 or 56 years. Same goes for the date which is normally dated during the years 2343 until 2314 BCE, though other dates have been proposed as well (2307-2253 BCE and 2288 to 2235 BCE).

¹There are little contemporary sources from the early phase of the Akkadian Empire, and the legends

surrounding Sargon should only be sparsely used. The primary sources for the reconstruction of the Akkad-era are economic documents and royal inscriptions.

²Names from the German source, hence you see 'sch'.

³Date from the German source as well, the most recent one I've read (2013)



Illustration 26 - Image from [Wikipedia](#)

Sources: Britannica (<https://www.britannica.com/biography/Sargon>)

Geschichte des alten Mesopotamien von Eckart Frahm, S. 116-118 (Reclam Verlag)

History of the old Mesopotamia by Eckart Frahm, p. 116-118 (published by Reclam)

ISBN: 978-3-15-019108-8

Nr. 2: Friederike Krüger - A female soldier in the Prussian army

During the liberation wars (1813-1814) volunteered thousands of people to defeat the napoleonic forces that occupied their territory. They made up 30,000 out of the 284,000 troop strength Prussian army, among them women who disguised as men. Due to the general hustle and bustle, no proficiency tests were done. Even after they were discovered, some of them stayed in the army. One of them was Friederike Krüger (1789-1848) who was a trained seamstress before she signed up as 'August Lübeck'. She cut her hair and wore men's clothing as did the others.

She was injured by shrapnel in Dennewitz on 6th September 1813; still on the battlefield, she was promoted to the rank of corporal and stayed in service until 1815.

She received the Iron Cross 2nd Class for her service and died in 1848.

...



Illustration 27 - Photo: Wikipedia

Sources: P.M. Zu Unrecht Vergessen (Wrongly Forgotten) <https://www.pm-wissen.com/zu-unrecht-vergessen/a/wer-war-die-soldatin-friederike-kruege/8183/>
ZeitGeschichte, Preussen: Aufstieg und Fall einer Großmacht - von 1415 bis Heute (Prussia:
Rise and Fall of a Major Power - from 1415 until Today), p. 62

(Released: 26th March 2022, 16:42 Uhr / 04:42 pm)

Vladimir Putin - the Butcher of Ukraine

Recent news about the now-liberated city of Bucha shows a massacre that was committed against civilians by the Russian invaders. Now, more than ever, it is necessary to implement a trade embargo on Russia in order to financially dry out the machinery of war.

In this entry, I wrote about occupation of Bucha and the massacre that took place; the casualties as of now and how many already had to flee, and finally what must (or rather should) be done now that the whole cruelty and horror of Russian occupation has been revealed.



Illustration 28 - Photo: LETA, Sintija Zandersone (source: [Public broadcasting of Latvia](#))

Occupation of Bucha and the Massacre

While most people probably already have learned about the atrocities that were committed in Bucha, here a recap from the beginning (capture of the town) to its liberation:

- **March 12th, 2022:** Russian forces captured the city and fully occupy it, announcement made by the Bucharian City Council. A convoy of 20 buses successfully [evacuates](#) refugees.
- **March 13th:** 67 people, killed by Russian artillery, were buried in a [mass grave](#) by the residents of Bucha.
- **March 15th:** Occupation of the city hall, employees at the building were captured and released the following day.
- **March 16th:** [Counter-attack](#) of Ukrainian military, including Bucha.

- **March 22nd:** Oleksandr Pavlyuk, head of the Ukrainian Regional Military Administration, [stated](#) the armed forces now try to prevent the Russian forces from crossing the Irpen River. Any offensive actions could not be taken at the time.
- **March 31st:** Ukrainian forces moved into Bucha and recapture the city.
- **April 1st/2nd:** The mayor of Bucha, Anatolii Fedoruk, [said](#) the city has been recaptured by the Ukrainian army.
- **April 3rd:** News about the massacre on civilians in the city of Bucha come out. The mayor of Bucha, Anatolii Fedoruk, told reporters that [about 300 civilians](#) had been killed.

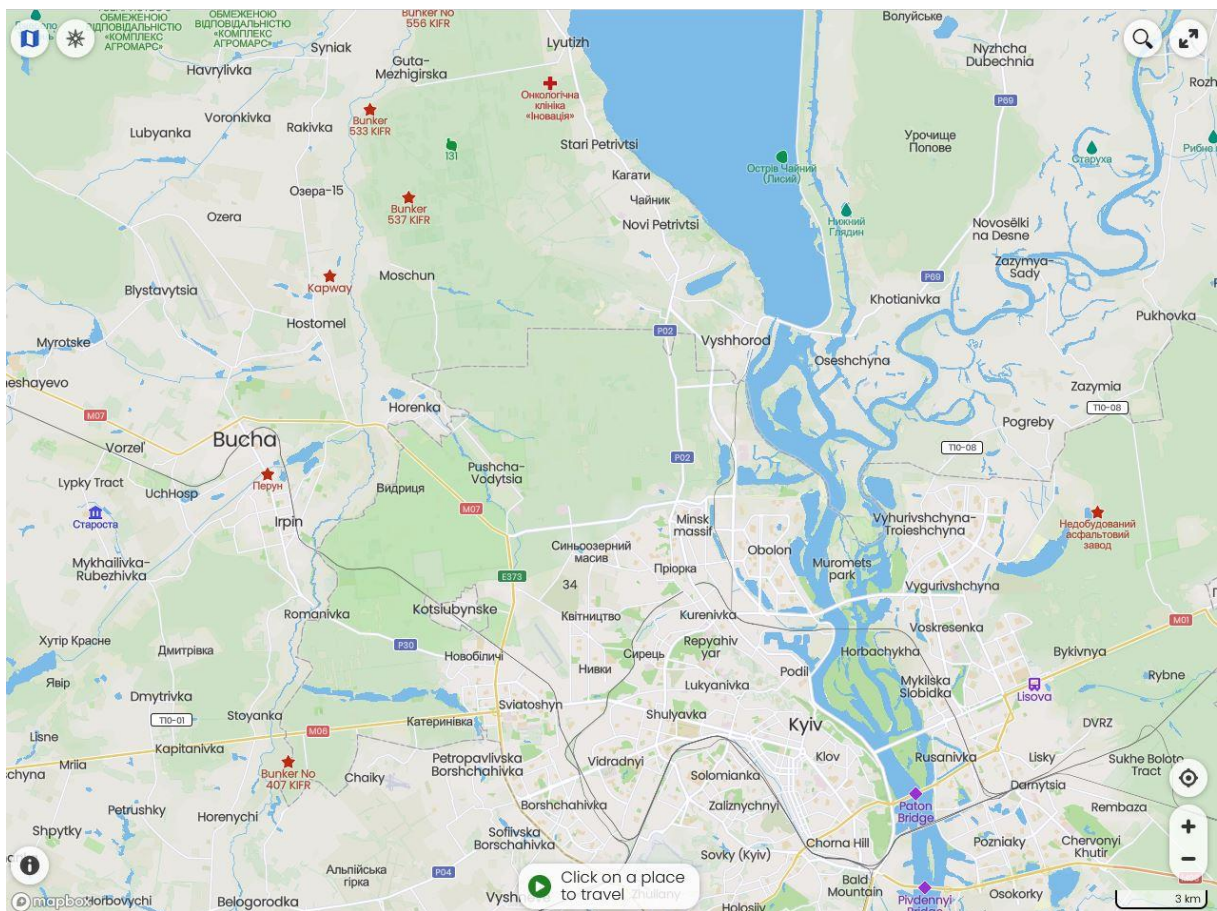


Illustration 29 - Map of Bucha with Kyiv for reference (source: mapcarta)

...

Moreover, Human Rights Watch (HRW) announced that they [had evidence](#) which documents war crimes in the occupied areas of the Kyiv, Chernihiv and Kharkiv regions:

- 1 case of repeated rape
- 2 cases of summary executions (one of six men, the other of one man)
- Between February 27 and March 14, 2022 other cases of unlawful violence and threats against civilians
- Soldiers were also seen looting civilian property (from food to clothing and fireword)

"The cases we documented amount to unspeakable, deliberate cruelty and violence against Ukrainian civilians," said [Hugh Williamson](#), Europe and Central Asia director at Human Rights Watch. "Rape, murder, and other violent acts against people in the Russian forces' custody should be investigated as war crimes."

Human Rights Watch interviewed 10 people, including witnesses, victims, and local residents of Russia-occupied territories, in person or by telephone. Some people asked to be identified only by their first names or by pseudonyms for their protection.'

Reminder: We don't know what occurred (or still occurs) in the still-occupied regions of Ukraine, especially Donetsk, Luhansk and Crimea. Given Putin's rhetoric that Ukraine was a mere 'accident' of history, and his desire to wipe out Ukraine identity, the worst isn't over yet.

Civilians casualties as of March 31st (OCHA)

On February 24 at 4 a.m. the Russian Federation's attack on Ukraine began. This list of casualties by the UN High Commissioner for Human Rights (OHCHR) ended on March 31st at midnight, local time. The reports are based on information gathered by the UN Human Rights Monitoring Mission in Ukraine (HRMMU) through *"interviews with victims and their relatives; witnesses; analysis of corroborating material confidentially shared with HRMMU; official records; open-source documents, photo and video materials; forensic records and reports; criminal investigation materials; court documents; reports by international and national non-governmental organisations; public reports by law enforcement and military actors; data from medical facilities and local authorities"*.

In order to ensure that the information is credible, the [OCHA](#) assesses and cross-checks the information they receive against other information.

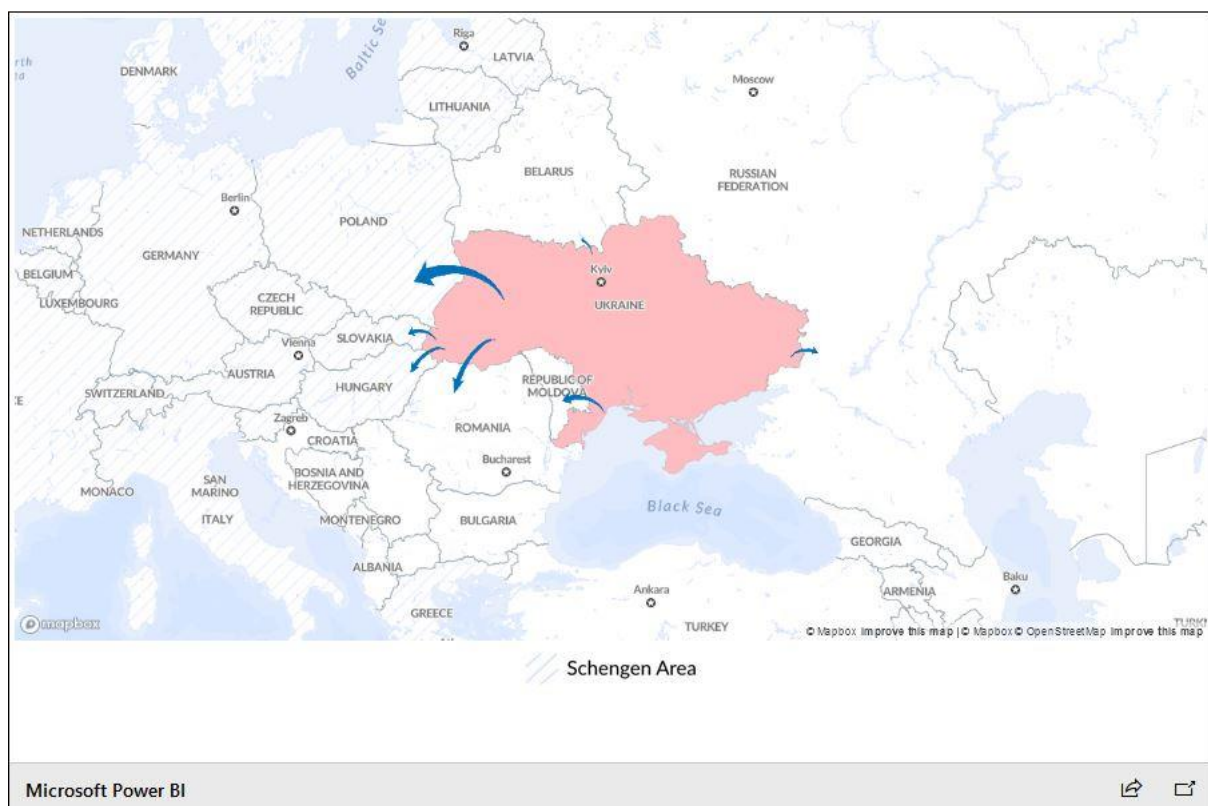
As of now, 1,276 were killed and 1,981 injured.

- a total of 1,276 killed (260 men, 184 women, 18 girls, and 36 boys, as well as 61 children and 717 adults whose sex is yet unknown)
- a total of 1,981 injured (228 men, 174 women, 38 girls, and 34 boys, as well as 88 children and 1,419 adults whose sex is yet unknown)
 - In Donetsk and Luhansk regions: 1,443 casualties (425 killed and 1,018 injured)
 - On Government-controlled territory: 1,130 casualties (358 killed and 772 injured)
 - On territory controlled by the self-proclaimed 'republics': 313 casualties (67 killed and 246 injured)

- In other regions of Ukraine (the city of Kyiv, and Cherkasy, Chernihiv, Kharkiv, Kherson, Kyiv, Mykolaiv, Odesa, Sumy, Zaporizhzhia, Dnipropetrovsk and Zhytomyr regions), which were under Government control when casualties occurred: 1,814 casualties (851 killed and 963 injured)
- Most of the civilian casualties recorded were caused by the use of explosive weapons with a wide impact area, including shelling from heavy artillery and multiple launch rocket systems, and missile and air strikes.

Refugees

On April 2nd, 2022, the amount of Ukrainians who fled is **4,176,401** (source: [UNHCR](#)). With a population of **43,274,545** (source: [worldometers](#)) that's nearly 10 % (9.65 %) of the total population that already fled as a result of the war.



Cultural Sites

"As of March 30, UNESCO said, the confirmed damaged sites, located in several regions across Ukraine, include 29 religious sites, 16 historic buildings, four museums and four monuments."

(source: [NPR](#))

Naturally, it is self-explanatory why such cultural sites need to be protected. They are part of a country's history and therefore its identity, furthermore, museums and religious sites are vivid places of a people's culture and the historic buildings and monuments important to keep the memory alive. Then there's the Hague Convention of 1954: *"Both Russian and Ukraine have signed on to an act by the [Hague Convention in 1954](#) that protects cultural*

property during armed conflict. It prohibits and condemns all attacks and damage to cultural heritage."

What Must Be Done

As I clearly stated in the introduction, a total embargo on Russia must now follow if the values of the West - especially Germany, who made itself dependent on Russian oil and gas - still mean something and whether the 'Never Again' is a 'Never Again!'.

Vladimir Putin and his entire entourage have to pay for their war crimes and the suffering they've caused. From the highest to the lowest level of governance in this regime of his, everyone is involved in the actions - and inactions to stop it - and guilty of continuing this ever-increasing list of violations against international law. Ukraine shall be rebuilt with the reparations Russia is going to pay, as well as financial aid of the European Union.

It is imperative for Ukraine to win against the aggressor, we have to continue our support with military equipment, intelligence (e.g. movement of Russian troops), financial aid and through whatever other means. Sanctions shall remain until Russia ends its aggression and returns the conquered territory to Ukraine.

Georgia should also be given the opportunity to either join Nato or securing their territorial sovereignty otherwise. Since the invasion in 2008, Russian troops remained on Georgian territory. (I know it likely is easier said than done, but it starts with a dialogue and how they'd like to proceed).

Finally, there also need to be discussions on security and foreign policy. Especially in Germany, where change has luckily already occurred before the new government under Olaf Scholz (SPD) announced an investment boost of the Bundeswehr (see: Munich Security Conference 2020, I also wrote a summary about it, but since it was on German the summary is on German too). The structure of the military and the efficiency are as important as its funding, and there are many other aspects to discuss (diplomacy too, both the military and diplomacy are tools in the toolbox of security and foreign policy).

The public needs to be informed and should be encouraged to constructively discuss it.

(Released: 3rd April 2022, 19:09 Uhr / 07:09 pm)

Science News #013

In Today's Science News, we learn about the Sixth Assessment Report of the IPCC, how CRISPR may have the key for a cure of HIV and the toll air pollution has on tropical cities.



Illustration 32 - (Image from Pixabay)

Article 1: IPCC's starkest message yet: extreme steps needed to avert climate disaster

Nature date: 5th April, 2022

Et-Date: 10th April, 2022

Summary: The Sixth Assessment Report of the IPCC was officially released on February 27th, 2022 (i.e. the final/approved version). 195 countries approved it after two-day long negotiations. In the ~2,900 pages (result of the work of hundreds of scientists across 65 countries), the focus is on curbing emissions and mitigating the effects of global warming.

Little time remains to act, however, humanity has the technology and means to achieve it.

Description of Contents

While a temporary warming above 1.5 C° might be inevitable, it is possible to bring temperatures back down if aggression action is taken to cut back on greenhouse gas emissions and extract carbon emissions from the atmosphere - according to the latest IPCC report. However, the window of opportunity is rapidly closing.

As Inger Andersen, executive director of the UN Environment Program, put it at the press conference: *"But increased action must begin this year, not next year; this month, not next month; and indeed today, not tomorrow."*

In the 2,900 page long report (which is [also available as a 37-page summary](#) for policy mak-

ers and everyone who's interested), which was the result of hundreds of scientists across 65 countries working together, the focus is on curtailing emissions and mitigating the effects of global warming. The final version was approved by 195 countries.

Multiple sources reported on difficulties during the virtual negotiations, among them India that raised questions about equity and responsibility and Saudi Arabia which scrutinized language related to the carbon-capture technology and the future of fossil fuels.

While it pushed the negotiations overtime, they neither impact the findings nor the underlying science in the report.

Now, it is up to the governments whether they will *"step up to the challenge with actions rather than unfulfilled pledges"*.

Key Points from the Report

- 2025 is the latest date that global emissions should peak and then decline drastically, for a 50% chance to limit warming to 1.5 °C.
In order to achieve the current goal, Co2-emissions would need to nearly halve by 2030 and reach 'net zero' by 2050.
Our current course - scientists estimated - puts us on a path for a 3 °C rise above pre-industrial levels,
- On a positive note: the price of renewable-energy technologies strong decreased and the global economy overall is getting cleaner.
Between 2010 and 2019, global energy intensity decreased by 2% annually - reversing a trend from the decades prior,
- In order to reach the 1.5 °C goal, some fossil fuels must remain underground.
Models slightly above this limit say that emissions from currently existing and planned fossil fuel projects exceed it,
- Net-zero emissions cannot be achieved by reducing Co2-emissions alone, carbon dioxide extraction will also be needed,
This can be achieved by reforestation, improving agricultural practices or a variety of nascent technologies that are able to capture carbon emissions,
- Global economic growth wouldn't be hindered by aggressive action to curb emissions.
While the GDP is projected to shortly dip mid-century with climate policies enacted, most research suggests that the economic benefits of limiting warming outweighs the cost of mitigation,
- Wealthy countries will need to aid low-income countries financially to address inequities in vulnerability to climate change and to speed up the clean-energy transition in a way that benefits all.
Nations with the lowest amounts of greenhouse gas emissions are often those who are the most affected: the 88 countries that comprise the Least Developed Countries and Island Developing States are collectively responsible for 1% of historical carbon emission.

Source

<https://www.nature.com/articles/d41586-022-00951-5>

Article 2: CRISPR and HIV: New technique in human blood unveils potential paths toward cure

SD-Date: 1st April, 2022

Et-Date: 10th April, 2022

ScienceDaily Summary: "Scientists are using new advances in CRISPR gene-editing technology to uncover new biology that could lead to longer-lasting treatments and new therapeutic strategies for Human Immunodeficiency Virus (HIV)."

Background

HIV still poses a threat to human health with last year alone an estimated 1.5 million new infections. Existing drug treatments are a very important tool to fight the HIV epidemic, being quite effective at suppressing viral replication and spread. However, they are only a treatment and not a cure, so people suffering from HIV have to follow a strict treatment regimen that requires continuous access to good affordable healthcare - not everyone has access to said infrastructure.

Studies before relied on immortalized human cancer cells (such as HeLa cells, the story of **Henrietta Lacks** can be read [here](#) and how it impacted ethics in the policy of bio specimens) as models to study how HIV replicated in the laboratory. They are easy to manipulate, but imperfect models of human blood cells. Furthermore, the majority of the studies used technology that could only turn down the expression of certain genes and not turn them off as it is with CRISPR the case, thus scientists cannot always definitely determine if a gene was involved in helping or suppressing viral replication.

The team around Judd Hultquist (a co-corresponding author) seeks to answer the question how the HIV virus - which only got 12 proteins and a genome that is a third of the size of SARS-CoV-2 - hijacks the body's cells to replicate and spread across the system.

Method of Research

As mentioned above, for this study the gene-editing technology [CRISPR/Cas9](#) (Clustered Regularly Interspaced Short Palindromic Repeats) had been used. For those unfamiliar with said technology or who need to refresh their knowledge:

*"To recap: in nature, when a virus invades bacteria, its unique DNA is integrated into a CRISPR sequence in the bacterial genome. This means that the next time the virus attacks, the bacteria will remember it and send **RNA** and **Cas** to locate and destroy the virus.*

*While there are other Cas enzymes derived from bacteria that cut out viruses when they attack bacteria, **Cas9** is the best enzyme at doing this in animals. The term CRISPR-Cas9 refers to a Cas variety being used to cut animal (including human) DNA."*

(source: cbinsights, link embetted)

The explanation of CBIinsights also summarizes the history of the technology. Additionally, I recommend [the article](#) of the National Library of Medicine (NIH).

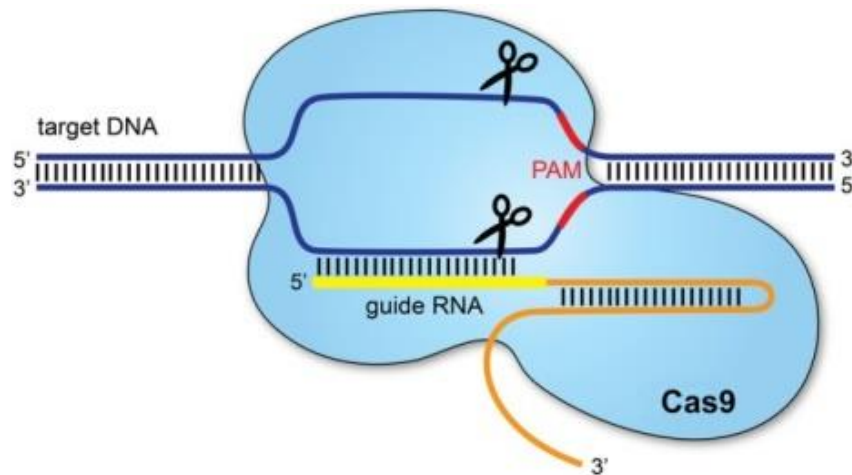


Illustration 33 - How CRISPR works - Infographic

"Cas9, one of the associated proteins, is an endonuclease that cuts both strands of DNA. Cas9 is directed to its target by a section of RNA. This can be synthesised as a single strand called a synthetic single guide RNA (sgRNA); the section of RNA which binds to the genomic DNA is 18–20 nucleotides. In order to cut, a specific sequence of DNA of between 2 and 5 nucleotides (the exact sequence depends upon the bacteria which produces the Cas9) must lie at the 3' end of the guide RNA: this is called the protospacer adjacent motif (PAM). Repair after the DNA cut may occur via two pathways: non-homologous end joining, typically leading to a random insertion/deletion of DNA, or homology directed repair where a homologous piece of DNA is used as a repair template. It is the latter which allows precise genome editing: the homologous section of DNA with the required sequence change may be delivered with the Cas9 nuclease and sgRNA, theoretically allowing changes as precise as a single base-pair." (source: NIH, 2016)

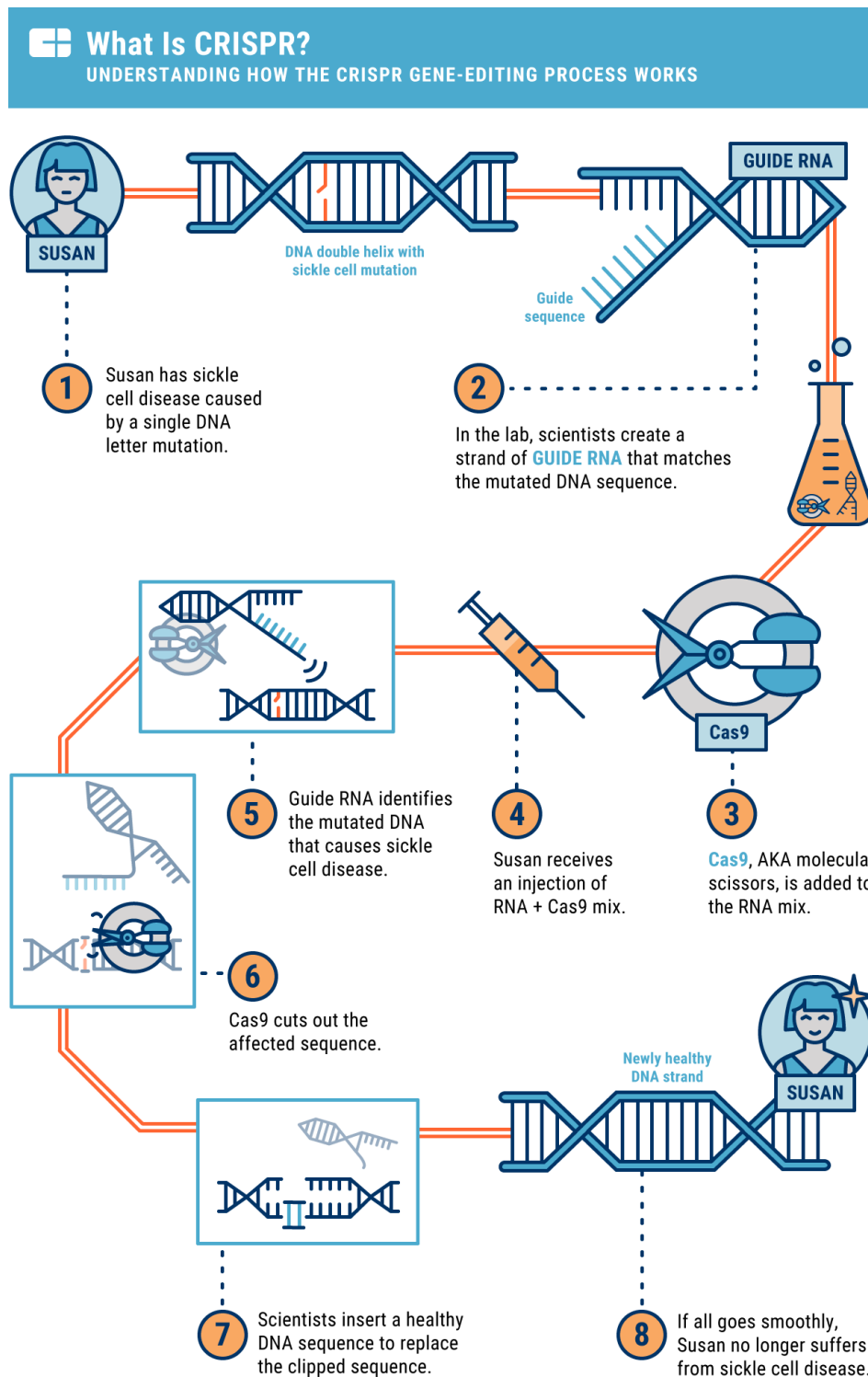
In the first step, the research team isolated T-cells - main target of HIV virus - from donated human blood, hundreds of genes were turned off using CRISPR/Cas9. Then, the cells that were 'knocked-out' were infected with HIV and analyzed.

Findings

- Decreased infection was shown in cells that lost a gene important for viral replication, whereas cells that lost an antiviral factor showed an increase in infection
- Nearly half of the identified genes were previously discovered, while over half - 46 genes - of the genes hadn't been looked at before in the context of HIV infection

By further developing this technology, the team wants to enable genome-wide screening where genes are independently turned on or off to identify all potential HIV host factors. This data would bring them closer to curative strategies.

Infographic how it could be used for other diseases:



This is a simplification of the CRISPR-Cas9 treatment and is used for illustrative purposes.

CBINSIGHTS

Illustration 34 - Source: CBInsights, for a complete picture on limitations/risks the NIH is recommended as well as other scientific sources such as the journal Nature

Source

<https://www.sciencedaily.com/releases/2022/04/220401160537.htm>

Article 3: Air pollution responsible for 180,000 excess deaths in tropical cities

SD-Date: 8th April, 2022

Et-Date: 10th April, 2022

ScienceDaily Summary: *"Around 180,000 avoidable deaths over 14 years in fast-growing tropical cities were caused by a rapid rise in emerging air pollution, a study has revealed."*

Method of Research

For this study, space-based observations from instruments onboard NASA and European Space Agency (ESA) satellites between 2005 to 2018 had been used.

The following cities were analysed in this study:

Africa: Abidjan, Abuja, Addis Ababa, Antananarivo, Bamako, Blantyre, Conakry, Dakar, Dar es Salaam, Ibadan, Kaduna, Kampala, Kano, Khartoum, Kigali, Kinshasa, Lagos, Lilongwe, Luanda, Lubumbashi, Lusaka, Mombasa, N'Djamena, Nairobi, Niamey, Ouagadougou.

South Asia: Ahmedabad, Bangalore, Chennai, Chittagong, Dhaka, Hyderabad, Karachi, Kolkata, Mumbai, Pune, Surat.

Southeast Asia: Bangkok, Hanoi, Ho Chi Minh City, Jakarta, Manila, Phnom Penh, Yangon.

Middle East: Riyadh, Sana'a

Findings

- Significant annual increase of pollution directly hazardous to health across all cities:
Up to 14% for nitrogen dioxide (NO₂) and for fine particles up to 8% (PM_{2.5})
- Increases of 'precursors' of PM_{2.5}:
Up to 12% for ammonia and up to 11% for 'reactive volatile organic compounds'
- In urban population, the exposure to air pollution increased 1.5- to 4-fold:
NO₂: 40 of the 46 cities
PM_{2.5}: 33 of the 46 cities
- Highest number of people dying prematurely due to air pollution:
South Asia, especially Dhaka, Bangladesh (totalling 24,000 people), and the Indian cities of Mumbai, Bangalore, Kolkata, Hyderabad, Chennai, Surat, Pune and Ahmedabad (totalling 100,000 people)

The degradation in air quality was attributed to emerging industries and residential sources like road traffic, waste burning, and widespread use of charcoal and fuelwood.

In tropical cities in Africa, the number of deaths are currently lower *"due to recent improvements in healthcare across the continent resulting in a decline in overall premature mortality"*, however, it is likely that the worst effects will occur in the decades that follow.

To end it with a quote of Dr Eloise Marais (UCL Geography), a co-author of the study:
"We continue to shift air pollution from one region to the next, rather than learning from errors of the past and ensuring rapid industrialisation and economic development don't harm public health. We hope our results will incentivise preventative action in the tropics."

Source

<https://www.sciencedaily.com/releases/2022/04/220408142911.htm>

(Released: 10th April 2022, 20:38 Uhr / 08:38 pm)

History: Henrietta Swan Leavitt - The Woman Who Changed Astronomy

Currently, I'm reading the book "The End of Everything" (by Katie Mack), there I found out about Henrietta Swan Leavitt and her contribution to astronomy. It inspired me to make this blog entry about Leavitt; here I lay down a short biography with her main work emphasized on and a honourable mention for the 'harvard computers'.



Illustration 35 - This photo shows Leavitt working at her desk in the Harvard College Observatory (image from: [Wikipedia](#))

Timeline

1868, July 4

Born in Lancaster, Massachusetts

1886-1888

Attended the Oberlin College in Oberlin, Ohio, then transferred to the Society for the Collegiate Instruction of Women (1879-1894, in 1894 it was renamed to Radcliffe College and became fully integrated into Harvard in 1999).

(Picture on the next page)



Illustration 36 - Radcliffe College during Winter
(image: [Wikipedia](#))

1892

Graduated from the Society for the Collegiate Instruction of Women.

1895

An interest of hers, which emerged in her senior year, led to her volunteering in the Harvard Observatory.

1902

Leavitt receives a permanent staff appointment. From the start, she worked on the observatory's great project of determining the brightness of all measurable stars.

There she also was associated with Williamina Fleming (1857 - 1911) and Annie Jump Cannon (1863 - 1941). She soon advanced from routine work to the head of the photographic stellar photometry apartment.

1907

New phase of her work: plan of Edward Charles Pickering (1846 - 1919) to establish photographically standardized values for [stellar magnitudes](#) (measurement of brightness used for stars and other objects in space).

The problem was given to her, she began with a sequence of 46 stars which were near the north celestial pole (as it already implies, there's also a south celestial pole, part of the [celestial sphere](#) - shortened with NCP and SCP).

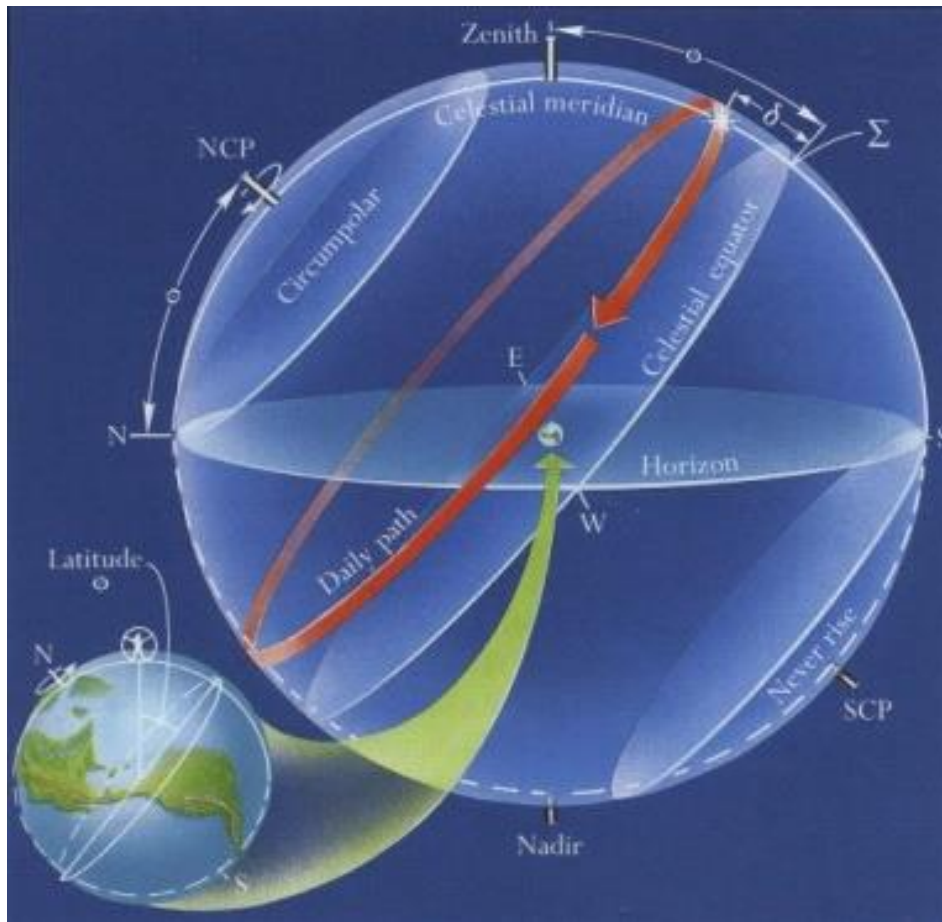


Illustration 37 - NCP = North Celestial Pole, SCP = South Celestial Pole
(source: stars.astro.illinois.edu)

1912

In this year, she made her outstanding achievement. Leavitt discovered that *"in a certain class of variable stars, the Cepheid variables, the period of the cycle of fluctuation in brightness is highly regular and is determined by the actual luminosity of the star"*. With the calibration of the [period-luminosity curve](#)* it permitted astronomers such as Edwin Hubble (1889 - 1953) to determine the distances of other Cepheid stars and thus also star clusters and galaxies in which they were observed in.

(Picture on the next page)

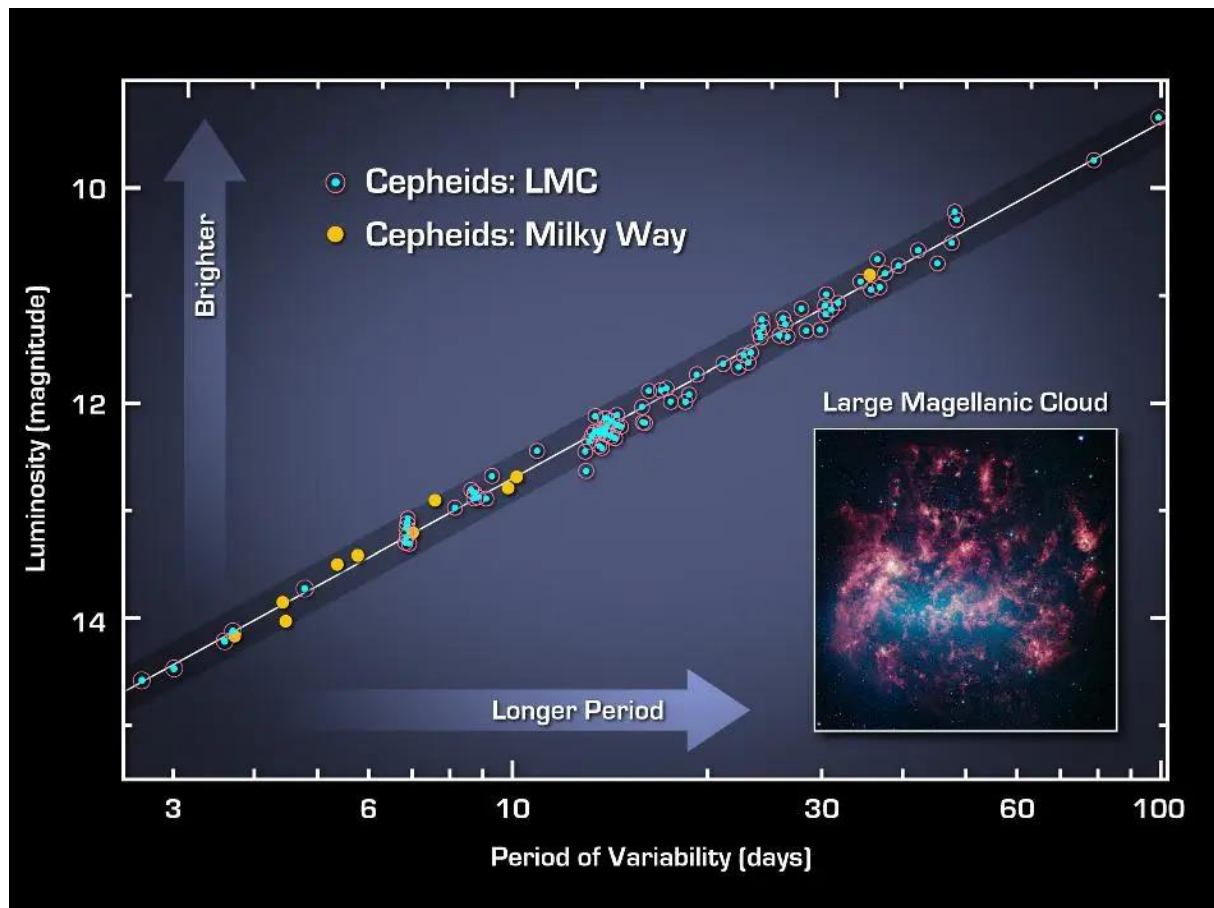


Illustration 38 - The data you see are from NASA's Spitzer Space Telescope, Cepheids are essential tools in cosmological-distance calculations ((source: [NASA](#))

"Once astronomers know how luminous a Cepheid is, they can compare that value to how bright it appears on the sky: the farther the object, the dimmer it will appear" – NASA

1912 and 1917

Publications of the standards which she developed by constructing new methods of analysis.

1913

An international project called "Astrographic Map of the Sky" adopts her North Polar Sequence. The project [already started in 1887](#) and used the newly available technology of photography, before that it was done by eye by astronomers looking through the telescope. This new method made it easier and quicker to catalogue stars; special kind of telescopes were used, known as astrographs (see image below showing The Melbourne Astrographic telescope which is displayed at the Sydney Observatory).

(Picture on the next page)



Illustration 39 - Sydney Observatory Third Dome, East Dome views.
(source: mass.museum)

1921

Died in Cambridge, Massachusetts.

When she died she had completely determined magnitudes of stars in 108 areas of the sky, discovered 4 novas and some 2,400 variable stars. The latter is especially remarkable, because the figure comprised more than half of all that were known even by 1930.

The End of Everything

I'm ending this rather short, but hopefully still insightful entry, with a quote of the book where I first learned about her (Katie Mack is a cosmologist, that means her field deals with the 'interior architecture' of our universe): *"This discovery was revolutionary, and perhaps one of the most important in the history of astronomy, in that it let us finally measure the scale of the universe around us. It meant that anywhere a Cepheid could be seen, we could get a reliable distance and start to make a usable map. By measuring how quickly a Cepheid pulsed, and how bright it looked from here, Leavitt could tell you with great precision how bright it really was, and thus how distant."* (p. 118)

...

Honourable Mention

I'd like to use this opportunity to talk about the women who made the measurements by hand. Known as '[computers](#)', they recorded everything in what is now known as the 'Ladies Logs' (at least in Australia). Leavitt was also part of this group of women who contributed a lot to astronomy.

Their job was to look over the photographic plates of the night sky and compare them with each other. They were mainly picked by Edward Charles Pickering. Looking at plates for hours on end was considered "*boring and unspecialized*" work, which is why Pickering turned to women - who were rarely employed at that time outside of the home -.



Illustration 40 - Edward C. Pickering (left) with the women known as 'Harvard's computers'
(Image credit: Harvard-Smithsonian Center for Astrophysics)

These women, hired by Pickering, worked full days for six days a week, but they were only paid between 25 cents and 50 cents an hour - far less than men would have been paid.

Leavitt's contribution was one part of the legacy. Her work allowed Edwin Hubble to determine the distance to the Andromeda Galaxy (aka M31, 2.5 million lightyears away) and establish that it was an galaxy of its own. Furthermore, it was the first distance measurement for a galaxy outside of the Milky Way.

More about them [here](#) (source: space.com).

Sources

Book: "The End of Everything" by Katie Mack, 2020

ISBN: 978-0-141-98958-7

Timeline

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Photo of Leavitt at her Desk

https://en.wikipedia.org/wiki/Henrietta_Swan_Leavitt

Photo of Radcliffe College

https://de.wikipedia.org/wiki/Radcliffe_College

What is stellar magnitude?

<https://earthsky.org/astronomy-essentials/what-is-stellar-magnitude/>

The Celestial Sphere

<http://stars.astro.illinois.edu/celsph.html>

Cepheids as Cosmology Tools

https://www.nasa.gov/mission_pages/spitzer/multimedia/pia15819.html

The Astrographic Catalogue

<https://www.maas.museum/inside-the-collection/2017/08/02/the-astrographic-catalogue/>

Harvard's 'Computers': The Women Who Measured the Stars

<https://www.space.com/34675-harvard-computers.html>

(Released: 1st May 2022, 20:45 Uhr/08:45 pm)

Jewish Combatants in the Second World War

On January the 27th, 1945, the Soviet army liberated the concentration camp [Auschwitz-Birkenau](#). The Wehrmacht unconditionally surrendered on May 7./8., 1945 - thus ending the reign of the national socialistic terror regime.

On this occasion, I'd like to shed light on the brave Jewish combatants who fought side by side with the allies against the Nazis. Over 1.5 million Jews enlisted in the military of various countries (from the US to the Soviet Union, as well as in Palestine which was under British Mandate at that time) or joined partisan groups.

I'll also cover the resistance where we learn how multifaceted it was.

(Note: this blog entry is a translation from "Jüdische Kämpfer im Zweiten Weltkrieg")



Illustration 41 - Identification symbol of the Jewish Brigade.

This brigade had a manpower of 30,000 and existed from the 20th September 1944 until Summer 1945

(Image source: Wikipedia)

Extent of the Participation

Overall, 1,515,300 Jews participated in combat actions during the Second World War - from official armies to partisan groups and resistance. For details see the spreadsheet below:

Land	Jewish Soldiers	Share of Soldiers in the Jewish population	Share of Jews in the total Number of soldiers	Part of the Population That is Jewish
USA	550,000	10.0 %	4.5 %	4.2 %
Soviet Union	500,000	16.6 %	1.5 %	1.5 %
Poland	180,000	5.8 %	11.0 %	8.9%
Great Britain	62,000	14.3 %	0.7 %	0.9 %
Mandatory Palestine	40,000	8.9 %	Irrelevant	Irrelevant
France	35,000	14.6 %	0.7 %	0.6 %
Canada	16,900	7.0 %	2.2 %	2.1 %
Greece	12,900	17.7 %	3.0 %	1.0 %
South Africa	10,000	9.7 %	3.0 %	0.9 %
Czechoslovakia	5,500	1.5 %	1.2 %	2.3 %
Australia	3,900	11.0 %	0.4 %	0.5 %
Netherlands	3,000	1.9 %	1.1 %	1.8 %
Yugoslavia*	2,500	3.6 %	0.5 %	0.4 %
Belgium	600	10.0 %**	No data available	No data available
Partisans and Resistance fighters	93,000	No data available	No data available	No data available

*Regarding Yugoslavia, the amount of Jews in partisan groups were particularly high
 **10.0 % of Jewish citizens.

Source: Museum for Jewish soldiers of the Second World War



The Badge of the Jewish Brigade

Illustration 42 - Primary source of this chart is the book "An Alle Fronten - Jüdische Soldaten im Zweiten Weltkrieg" by Wladimir Struminski (p. 21)

More than half of the Jewish population was murdered in the genocide carried out by the Nazis (which begun with the attack on Poland on September 1st, 1939). Before the gas chambers existed, people were murdered by firing squads (known as the bullet holocaust, where 1.5 to 2 million fell victim to it).

The [Massacre of Babyn Yar](#) (the largest massacre on european soil during World War 2) took place on the 29. and 30. September 1941, 33,771 Jews were murdered.

"Soldiers of the Wehrmacht aided in surrounding and securing the area. The people who were rounded up had to hand over their baggage, were forced to undress down to the underwear and compelled to walk into the ravine. Once there, they were forced to lay on the ground face down and were murdered through a shot in the back of the neck. In intervals, the growing number of corpses were covered in sand and debris." (source: [bpb](#))

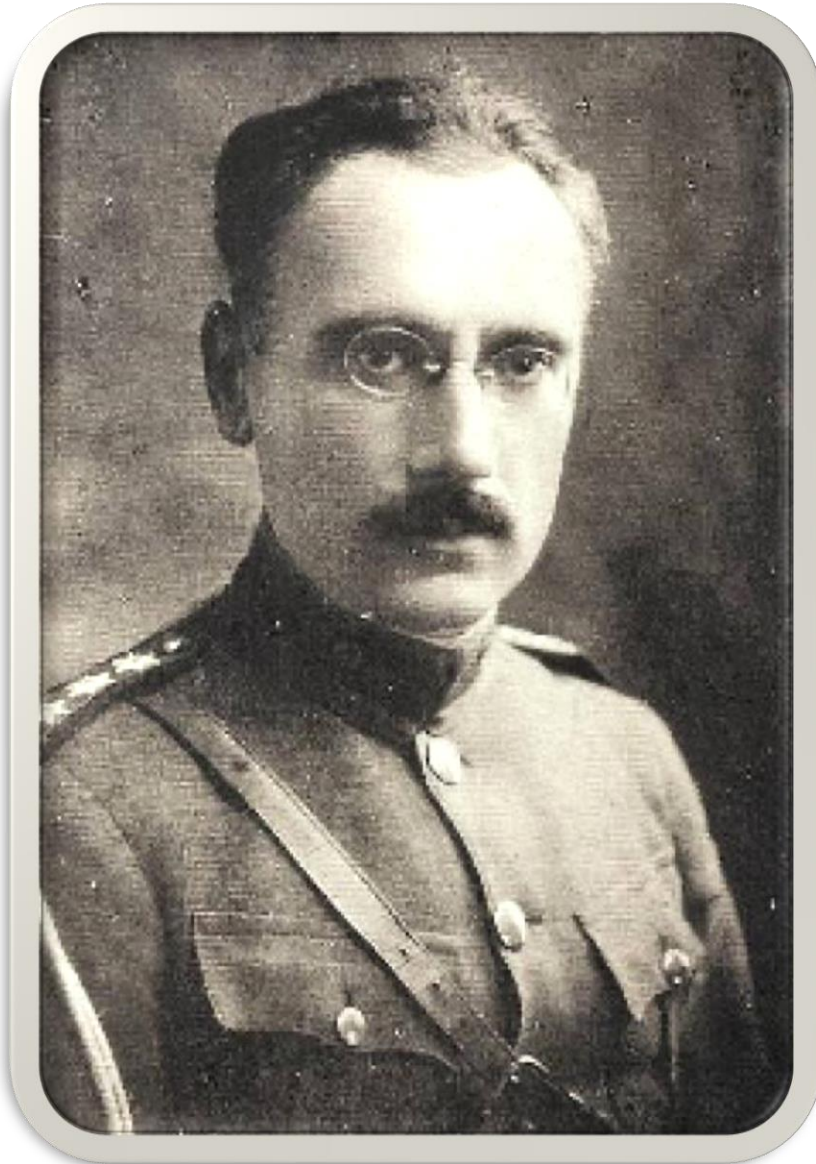
The location was used as a killing site by the Nazis until the fall of 1943, an estimated 100,000 people - Jews and Non-Jews - were murdered at Babyn Yar.

In 1943/1944, when East Europe was freed from Nazi occupation and the native population joined the war effort, there were only small amounts of Jews left to enlist and serve with their non-Jewish comrades. Hence, during the last phase of the war, there were also less serving in the Polish army (see p. 22 and 33)¹.

Introduction to three Combatants

The book where I've got the spreadsheet from also highlights individual Jewish men and women who fought in the war. Here, I want to introduce you to three of them.

Mordechai Frizis (1. January 1893 - 7. Dezember 1940)



Frizis was born in 1893 on the Greek island Euboea, Chalkis, as one of three children. His parents wanted him to become a lawyer, however, he went against the wish of his parents and enlisted in the army. He also served in the First World War.

In 1940, he successfully fought off Italian invaders which led to the third Reich becoming involved and conquering Greece. This resulted in delaying the invasion of the Soviet Union for 6 weeks (some historians argue that this prevented the Wehrmacht from conquering Moscow before the onset of Winter, p. 54).

On the 5th December he attempted to prevent the Italians from an orderly retreat, but was killed during an air raid. In order to more easily control the situation on the battlefield, he always rode on a horse, but refused to get down which made him an easier target.

In Greece, he's an honoured national hero and in his hometown a statue was built depicting him riding on his horse.



...

Lydia "Liliy" Litvak (18. August 1921 - 1. August 1943)



Lydia Litvak was born in Moscow on the 18th August, 1921. When she was a teenager, she joined a flying club and completed her first solo flight at the age of 15.

She first appeared as a pilot in action in the Battle of Stalingrad (July 17, 1942 - February 2, 1943) where she made her first shoot-downs. Her comrades gave her the nickname "lily" which prompted her to draw the plant on her plane. German pilots misinterpreted the drawing which led to her being given the name "White Rose of Stalingrad".

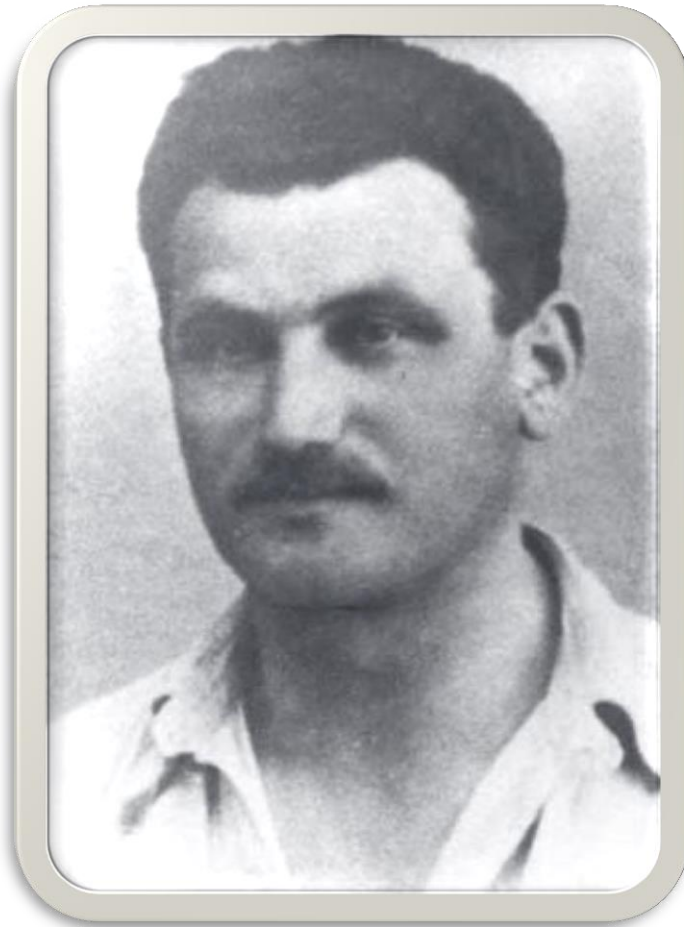
In March 1943, Lydia was injured by several German aircrafts but succeeded in returning to her base. In May, when she was shot down over hostile territory, she managed to fight her way back to Soviet-controlled territory and climbed again into the cockpit despite injuries. Eventually, on August 1st of the same year, she was attacked by 8 German aircrafts of the type Messerschmitt Bf1 in her Jakowlew J-1. An encounter she didn't survive.

At the time of her death, she had the rank of Lieutenant Colonel and was with 12 shoot-downs the most successful female fighter ace in World War II. Finally, in 1990, she received post-mortem the title "Hero of the Soviet Union" from Michail Gorbatchov after her mortal

remains were found (source: "[A Dance With Death: Soviet Airwomen in World War II](#)", p. 158).



Tuvia Bielski (8. May 1906 - 12. June 1987)



Born in the year 1906. Bielski lived in the Soviet-occupied part of Poland in 1939. His partisan activities began with the German invasion of the USSR in 1941. With his brothers Zussia, Assael and Aharon he fled to the forests of Naliboki which is - nowadays - located in West-Belarus.

Along with other Jews he formed a small battle group which grew to the size of over 1,200 participants. However, not only armed Jews joined this group, but also hundreds of unarmed. In the camp they set up in the forest, they soon established schools, workshops, Synagogues and else. Overall, they managed to save 1,200 Jews - considering the persecution apparatus of the Nazis that's a large amount.

After the war he emigrated to Israel, in 1957 he moved with his brothers Zussia and Aharon to the United States. 30 years later, Bielski died.

His story was made into a film and released under the title "Defiance" in 2008, Daniel Craig was involved in the production (who most people probably know from the James Bond series).

(Picture on next page)



Resistance is Multifaceted

Lastly, we shall take a more detailed look at the resistance during the Nazi reign. In an article of the German history magazine ZeitGeschichte (Jewish Life in Germany - Between Assertiveness and Persecution²), it is said that passivity has been ascribed to the Jewish population (among them Hannah Arendt when she wrote about the Adolf Eichmann process and the historian Raul Hilberg in his book "The Destruction of the European Jews").

That this wasn't the case - as the part before has shown as well - can be seen by the various reactions and actions. Here listed:

- **Individual and institutional protests:** wrote petitions and position papers where they advocated for improvements of their situation
- **Assertiveness:** refused to follow orders and active participation in resistance groups
- **Self-determination:** went into hiding, fled, and - in the worst case - took their own lives (to avoid being killed by the Nazis, for instance)
- **Preventing worse:** An attempt to mitigate the anti-Jewish policies; the "Reichsvereinigung der Juden" (= National Association of the Jews) helped in emigration efforts,

cared for those left behind (e.g. seniors), delayed deportations and tried to mitigate hardships

- **Survival:** A well-known group is the Chug Chaluzi (Group of Pioneers), a Zionist movement which viewed the underground as an important part of resistance (since the Nazis planned the annihilation of the Jewish population, each life saved was considered to be an act of resistance), or how Nathan Schwalb - leader of the headquarters in Geneva - formulated it: "With each life that we save, we fight against Hitler."

Moreover, everyone should be made aware that - back then - most people didn't know how far the National Socialists would go. Additionally, there was the dilemma of collective punishment people faced. Through the action of one, many more could be targeted (e.g. attack on the propaganda exhibition "Sowjetparadies" in 1942, 154 Berlin Jews were executed along with 96 Jewish prisoners of the KZ Sachsenhausen. 250 more were either murdered in Sachsenhausen or deported to Auschwitz).

As I did in the original entry, I'll end it here with the (translated) quote of the article:
"Such a differentiated depiction of Jewish reactions means one thing above all: we have to overcome the one-sided victim narrative. This also has consequences for our culture of remembrance: if one perceives the Jewish people only as victims, they retrospectively take away their individuality and dignity and adopts the view of the perpetrators."

Sources

¹ An Allen Fronten - Jüdische Soldaten im Zweiten Weltkrieg
ISBN: 978-3-942271-80-6, **Publisher:** Hentrich & Hentrich

² Jüdisches Leben in Deutschland - Zwischen Selbstbehauptung und Verfolgung
Artikel: "Mit jedem Leben bekämpfen wir Hitler" (p. 104-108)

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Image: Memorial of Frizis
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Image: Lydia Litvak

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Image: Tuvia Bielski

<https://www.jewishpartisans.org/content/resist-curriculum>

Movie Poster: Defiance

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(Released: 7th May 2022, 11:36 Uhr/11:36 am)

Science News #014

In Today's Science News we learn about a successful experiment regarding Moon soil, the newly taken photo of the black hole in our galaxy and, returning back to Earth, a technological development that allows for paper-thin loudspeakers (plus an article about ultrathin fuel cells which could have a significant impact on medical science).

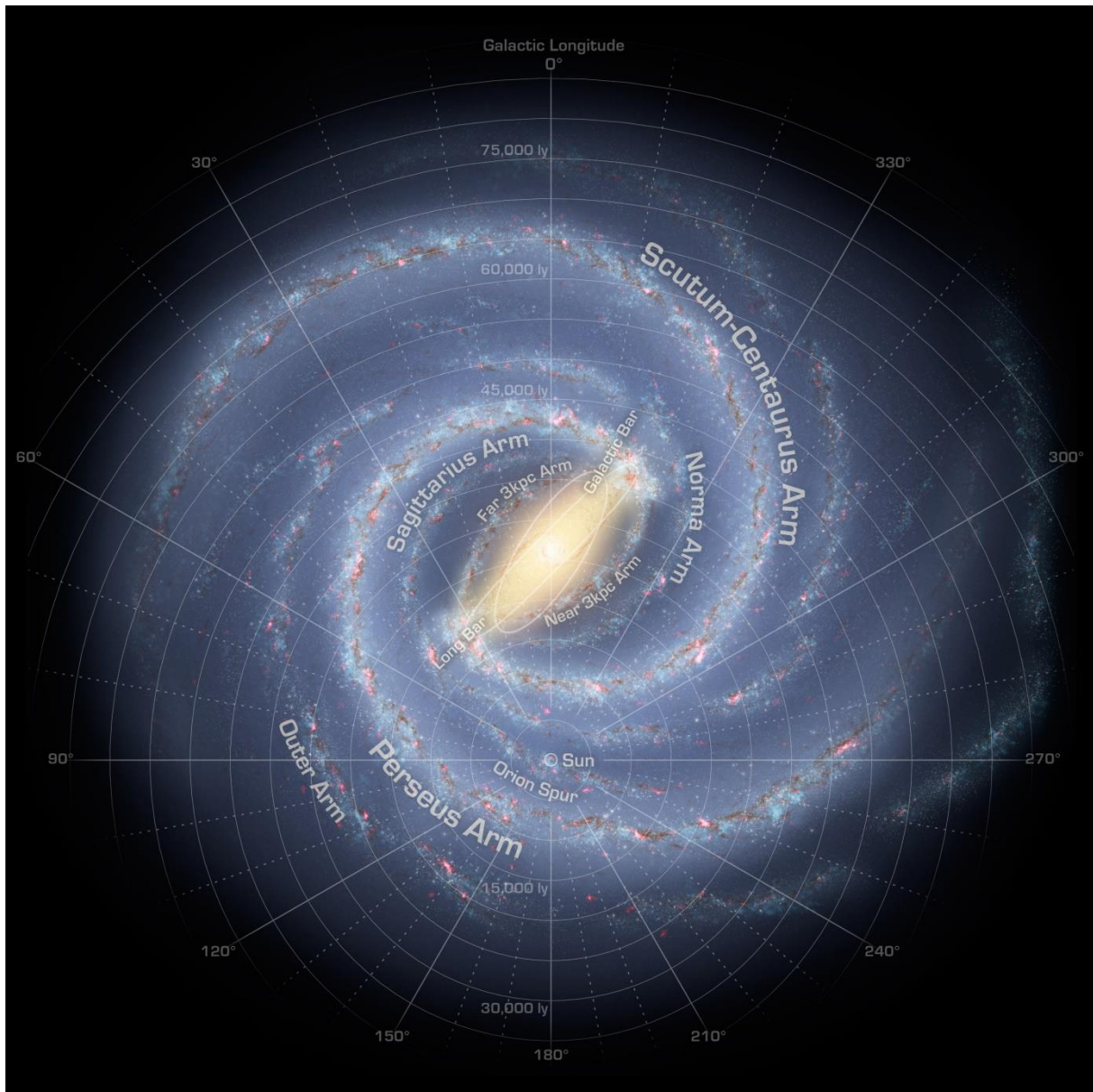


Illustration 43 - "The galaxy's two major arms (Scutum-Centaurus and Perseus) can be seen attached to the ends of a thick central bar, while the two now-demoted minor arms (Norma and Sagittarius) are less distinct and located between the major arms. [...] The artist's concept also includes a new spiral arm, called the "Far-3 kiloparsec arm," discovered via a radio-telescope survey of gas in the Milky Way. This arm is shorter than the two major arms and lies along the bar of the galaxy. Our sun lies near a small, partial arm called the Orion Arm, or Orion Spur, located between the Sagittarius and Perseus arms" (source: [NASA](#))

Article 1: A first: Scientists grow plants in soil from the Moon

SD-Date: May 12th, 2022

Et-Date: May 13th, 2022

ScienceDaily Summary: *"Scientists have, for the first time, grown plants in soil from the Moon. They used soil collected during the Apollo 11, 12 and 17 missions. In their experiment, the researchers wanted to know if plants would grow in lunar soil and, if so, how the plants would respond to the unfamiliar environment, even down to the level of gene expression."*

Method of Research

For this experiment, the researchers only had 12 gram of lunar soil. The soil was collected during the missions of [Apollo](#) 11 (July 16, 1969 - July 24, 1969), 12 (November 14, 1969 - November 24, 1969) and 17 (last lunar mission: December 7, 1972 - December 19, 1972). Anna-Lisa Paul and Robert Ferl applied three times over the course of 11 years before being granted the loan by NASA.

Due to the very limited amount of Moon soil, the researchers had to carry out a small scale, carefully choreographed experiment. Thimble-sized wells in plastic plates, normally used for culturing cells, took on the functions of pots. These "*pots*" were then filled with approximately one gram of lunar soil and enriched it with nutrient solutions. Lastly, a few seeds of [Arabidopsis plant](#) were added.

For those who do not what the Arabidopsis thaliana is: it is widely used in plant sciences, because its genetic code has been fully mapped. Moreover, it is easy to store and got a relatively small genome size. As the article of the NSF article explains it: *"As a photosynthetic organism, Arabidopsis requires only light, air, water and a few minerals to complete its life cycle. It has a fast life cycle, produces numerous self progeny, has very limited space requirements, and is easily grown in a greenhouse or indoor growth chamber. It possesses a relatively small, genetically tractable genome that can be manipulated through genetic engineering more easily and rapidly than any other plant genome."*

(Picture on the next page)



Illustration 44 - Photo credit: Luca Comai,
University of Washington, USA

This plant allowed the researchers to study the affects the soil has on plants down to the level of gene expression. The control group was placed in non-lunar soils (JSC-1A which mimics real lunar soil, simulated Martian soil and soils from extreme environments).

Findings

- Nearly all of the seeds sprouted
- Compared to the control group, the plants grew more slowly, were smaller or varied more in size than their counterparts
- On a genetic level, the plants perceived the lunar soil as a stressor
- There may be a link between where the soil was taken and how it affected the plants: plants grown in mature soil (lunar soil exposed to cosmic wind) experienced the most stress, whereas plants grown in *"comparatively less mature soils"* performed better

Source

<https://www.sciencedaily.com/releases/2022/05/220512121840.htm>

Article 2: Astronomers reveal first image of the black hole at the heart of our galaxy

SD-Date: May 12th, 2022

Et-Date: May 14th, 2022

ScienceDaily Summary: *"Astronomers have unveiled the first image of the supermassive black hole at the center of our own Milky Way galaxy. This result provides overwhelming evidence that the object is indeed a black hole and yields valuable clues about the workings of such giants, which are thought to reside at the center of most galaxies."*

Background

The image taken of the black hole in our galaxy was the result of the work of more than 300 researchers from 80 institutes around the world that make up the EHT (Event Horizon Telescope) collaboration. Several radio observatories were part of this Earth-wide telescope, amongst them the Atacama Large Millimeter/submillimeter Array (ALMA) and the Atacama Pathfinder EXperiment (APEX) in the Atacama Desert in Chile, the IRAM 30-meter telescope in Spain, as well as the NOthern Extended Millimeter Array (NOEMA) in France (since 2018). The data was combined by the supercomputer of the Max Planck Institute for Radio Astronomy in Germany. Furthermore, Europe also contributed to this project through funding granted by the European Research Council and the Max Planck Society in Germany.

Unlike the black hole [Messier 87](#) (M87), the gas around Sagittarius A* (Sgr A*, pronounced "sadge-ay-star") needs mere minutes to orbit around the black hole which means that the brightness and pattern of the gas changed rapidly. Consequently, it took longer to take a clear picture since new sophisticated tools had to be developed as well.

Sgr A* mass equals about 4 million suns and is 27,000 light years away from Earth.

(Picture on next page)



Illustration 45 - M87 as seen from mid-northern latitude for the given month and time
(source: NASA)

Making of the Image

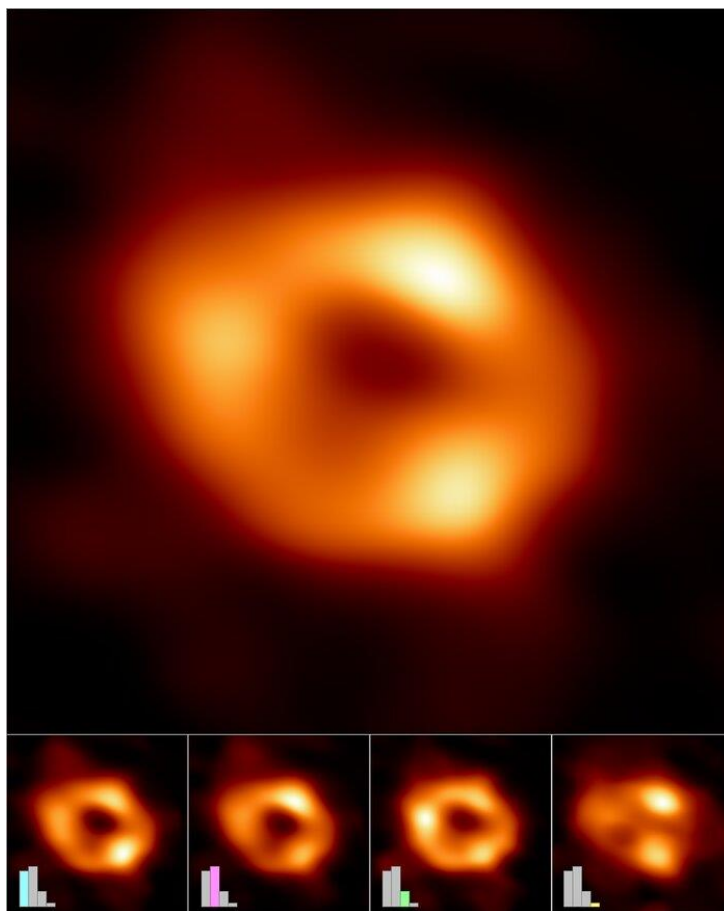


Illustration 46 - Image from ESO

Now to the image itself and [how it was made](#).

As explained above, the gas around Sagittarius A* needs only minutes to orbit which makes it difficult to get a clear picture. It also required an 'Earth-wide' telescope, meaning that several radio observatories around the world were virtually connected to focus on said black hole. The main image you see above - and very likely saw in the news too - is the result of averaging together thousands of images through computational methods. It retains features more commonly seen in the varied images, and suppresses infrequent features.

The bars you see in the small images beneath show the relative number of images belonging to each, with the first three containing thousands and the fourth only hundreds of images. The heights of the bars indicate the "weight" each of these four images contributed to the main one above.

In case you need to refresh your knowledge on black holes, here a quick read (also from the website of NASA): "[What Is a Black Hole?](#)" (August 21, 2018)

In short: only stars with a certain mass become black holes, when they collapse. Their collapse causes a supernova which blasts parts of the star into space (that's also how heavier elements were created in the early universe which made life possible in the first place). Our sun, however, doesn't have enough mass to do that. At the end of its life, [in about 5 billion years](#), the sun will grow to a red giant and consume Mercury, Venus and possibly even Earth. In this state it resides for a billion years before becoming a white dwarf.

In case you want to know what the critical mass for a star is to turn into a black hole, here the answer from the National Radio Astronomy Observatory ([NRAO](#)):

"[...] Since the exact mass of an object like a star that must ultimately become a black hole is a function of its radius, there isn't an exact mass above which that object must collapse to a black hole. Said another way, any object which collapses to the point where its radius is less than a certain limit must ultimately become a black hole. This radius is called the Schwarzschild radius (R_s), and it is given by the following equation:

$$R_s = 2MG/c^2$$

where M is the mass of the object, G is the gravitational constant, and c is the speed of light. If you plug in values for the constants G and c and use solar masses for M and km for R_s , this equation reduces to the following rather simple form:

$$R_s = 2.95 * M(\text{solar masses}) \text{ km}$$

So, for a star with the same mass as our Sun, the Schwarzschild radius is about 3 km, or about 2 miles. In general, stars with final masses in the range 2 to 3 solar masses are believed to ultimately collapse to a black hole." - answer by Jeff Mangum

Meaning

Now that scientists got two black hole images, they can compare and contrast them to each other. The new data can be used to test theories and models of how gas behaves around supermassive black holes - a process that is not fully understood yet, but is thought to play a key role in shaping the formation and evolution of galaxies.

And this isn't all either, to quote ScienceDaily: *"Progress on the EHT continues: a major observation campaign in March 2022 included more telescopes than ever before. The ongoing expansion of the EHT network and significant technological upgrades will allow scientists to share even more impressive images as well as movies of black holes in the near future."*

Source

<https://www.sciencedaily.com/releases/2022/05/220512094206.htm>

Article 3: Researchers develop a paper-thin loudspeaker

SD-Date: April 26th, 2022

Et-Date: May 14th, 2022

ScienceDaily Summary: *"Researchers created an ultrathin loudspeaker that can turn any rigid surface into a high-quality, active audio source. The fabrication process can enable the thin-film devices to be produced at scale."*

Background

Loudspeakers that are usually found in headphones or other audio systems use electric current inputs that pass through a coil of wire that generates a magnetic field, which moves a speaker membrane, that moves the air above it, thus creating the sound we hear (see animation, in this document only a picture).

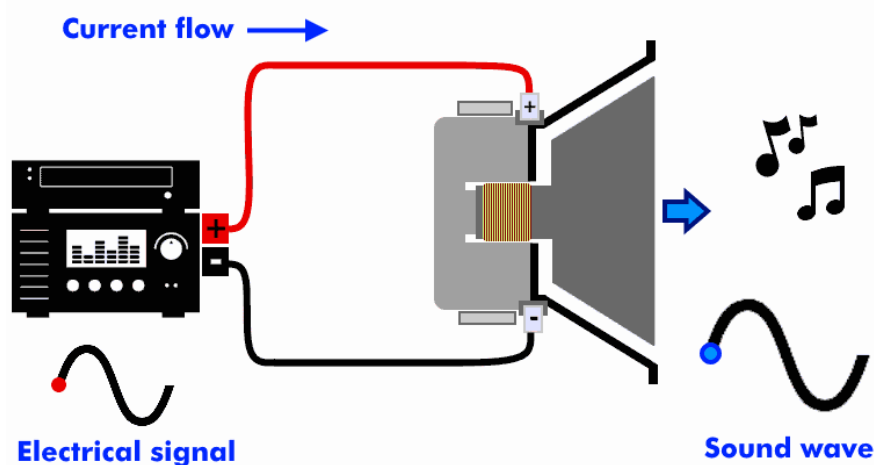


Illustration 47 - Animation by Soundcertified

The newly developed loudspeakers have a simplified design by using a thin film of shaped [piezoelectric material](#) (piezo is greek for "push", materials with this property can generate internal electrical charges from applied mechanical stress) that moves when voltage is applied over it, in turn it moves the air above it and generates sound.

Until now, the majority of thin-film speakers could only work when they were freestanding due to the film having to bend in order to produce sound. This problem was solved by letting only tiny domes vibrate individually on a thin layer of piezoelectric material instead of the entire material: *"These domes, each only a few hair-widths across, are surrounded by spacer layers on the top and bottom of the film that protect them from the mounting surface while still enabling them to vibrate freely. The same spacer layers protect the domes from abrasion and impact during day-to-day handling, enhancing the loudspeaker's durability."*

Building the Loudspeakers

The researchers used a thin sheet of PET - a type of light-weight plastic - and cut tiny holes in it with a laser. Then, the underside of the holed PET layer was laminated with a very thin film (~ 8 microns) of piezoelectric material called PVDF. A Vacuum was applied above the bonded sheets and a heat source, at 80 °C (176 °F), underneath them.

Because the PVDF layer was so thin, the pressure difference created by the vacuum and heat source caused it to bulge. In areas where it wasn't blocked by the PET layer, domes started to protrude. Lastly, the researchers laminated the other side of the PVDF with another PET layer to act as a spacer between the domes and the bonding surface.

Once a roll-to-roll process has been integrated, *"it could be fabricated in large amounts, like wallpaper to cover walls, cars, or aircraft interiors"* (Jinchi Han, co-author of the study).

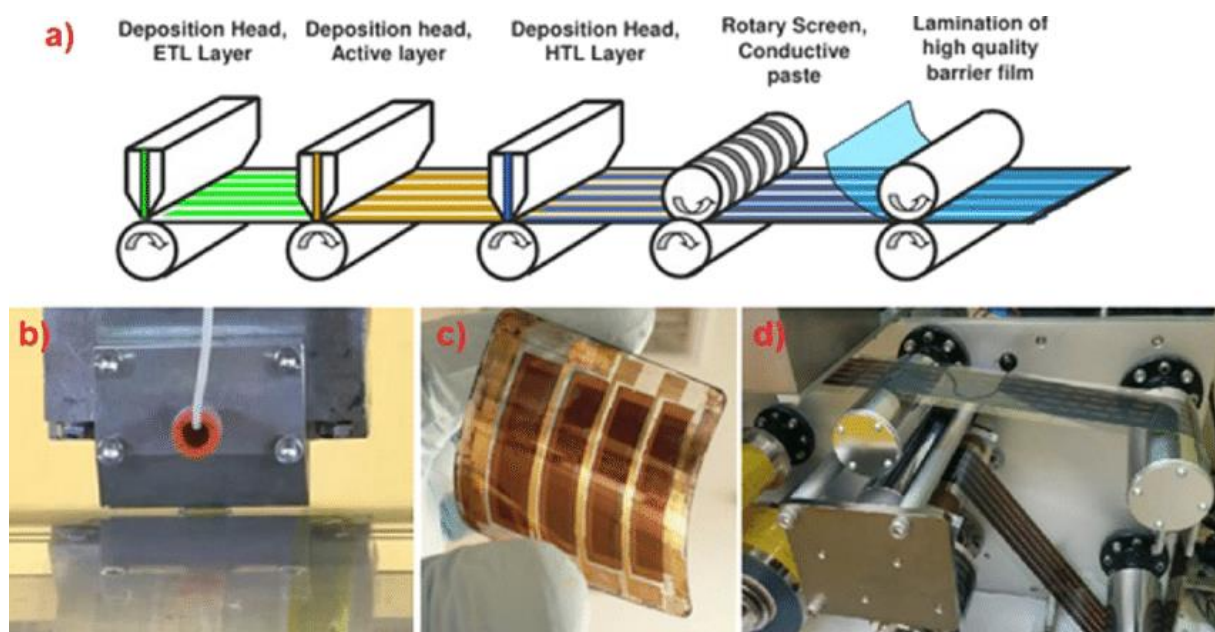


Illustration 48 - An example of roll-to-roll manufacturing (source: [Researchgate](#))

In other words: it can be produced on large scales.

Applications

Another benefit of this paper-thin loudspeaker is the simple fabrication process which also allows for domes with a larger radius which displace more air and produce more sound, however, they also have a lower resonance frequency (frequency at which a device operates most efficiently, a low resonance leads to audio distortion).

- 📄 **Noise cancellation:** generating sound of the same amplitude in a cockpit but in opposite phase; thus the two sounds cancel each other out.
- 📄 **Immersive entertainment:** providing three-dimensional audio in a theater or theme park ride.
- 📄 **Ultrasound detection:** using the sound like echolocation of a bat and locating a person in a room and how they move.
- 📄 Adding a reflective surface to create patterns of light -> for future display technologies. Immersed in liquid, they could enable chemical processing techniques to use less energy.

Source

<https://www.sciencedaily.com/releases/2022/04/220426153637.htm>

Bonus: Ultrathin fuel cell uses the body's own sugar to generate electricity

Techxplore Date: May 13th, 2022

Et Date: 14th May, 2022

Only a short overview over this interesting article I found, in bullet points.

- ❖ Inspiration for the new fuel cell came in 2016
- ❖ Not the first with the idea of a glucose fuel cell; back in the 1960s it was initially introduced but scrapped due to the appearance of lithium-iodide batteries which became the standard power source for medical implants, e.g. cardiac pacemaker
- ❖ Benefit of fuel cells is direct energy conversion, no energy needs to be stored
- ❖ There are three layers to it: a top anode, a middle electrolyte, and a bottom cathode
- ❖ The team looked for improvements of the materials and designs, due to polymer quickly degrading at high temperatures
- ❖ Glucose fuel cell with an electrolyte made from ceria (a ceramic material)
- ❖ 150 individual glucose cells were fabricated on a chip, about 400 nanometers thin and 300 micrometers wide (ca. the width of 30 human hair)
- ❖ The cells were patterned onto silicon wafers to show that they are compatible with semiconductor material
- ❖ 80 millivolts was the peak voltage of many cells, given their size it was the biggest power density of any existing glucose fuel cell design

Moreover, this new design withstands temperatures up to 600 °C and the sugary power source generates about 43 microwatts per square centimeter of electricity.

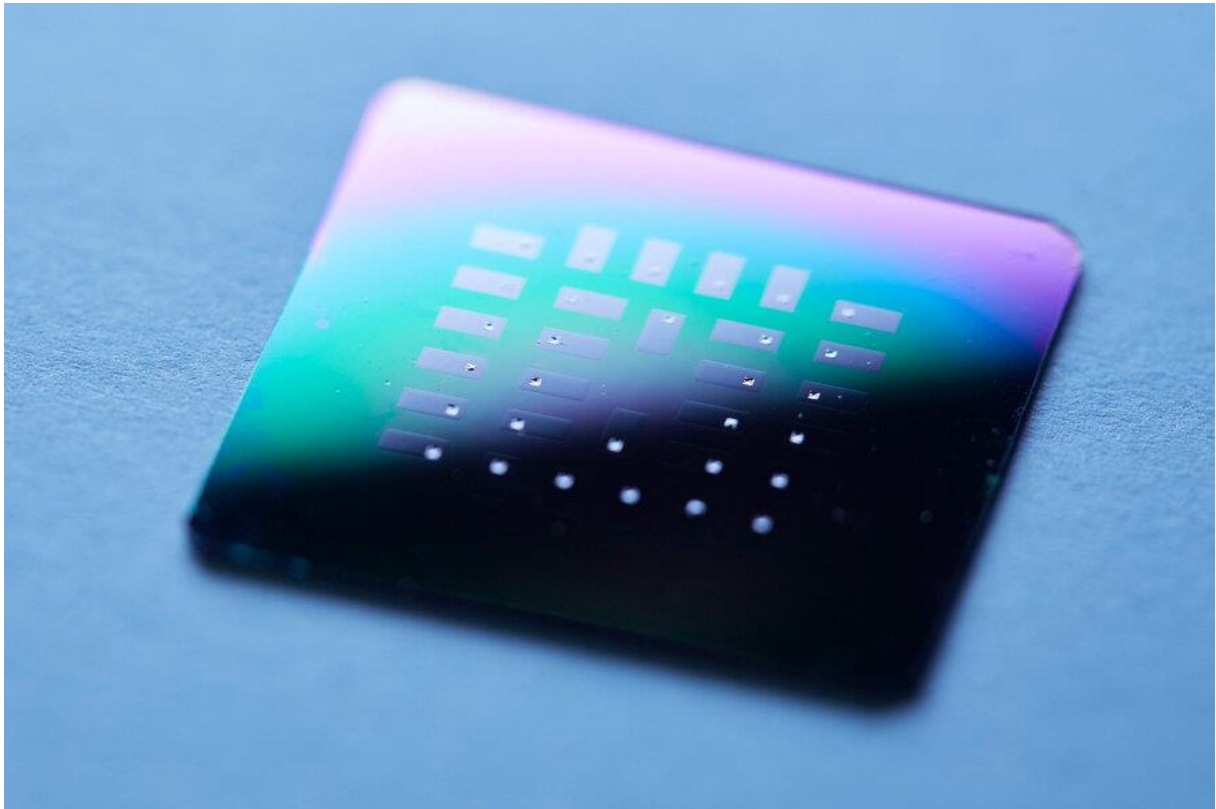


Illustration 49 - Silicion chip with 30 individual glucose micro fuels (rectangles) Credit: Kent Dayton

To end it with a quote of Jennifer L. M. Rupp: *"Instead of using a battery, which can take up 90 percent of an implant's volume, you could make a device with a thin film, and you'd have a power source with no volumetric footprint."*

Source

<https://techxplore.com/news/2022-05-ultrathin-fuel-cell-body-sugar.html>

(Released: 14th May 2022, 21:27 Uhr/09:27 pm)

Sri Lanka - History from 1500 to 2022

In this entry, we'll learn about the history of Sri Lanka from the 1500s when the Portuguese first set foot on the island in 1505 up until the recent protests when the presidential palast was stormed by protesters.

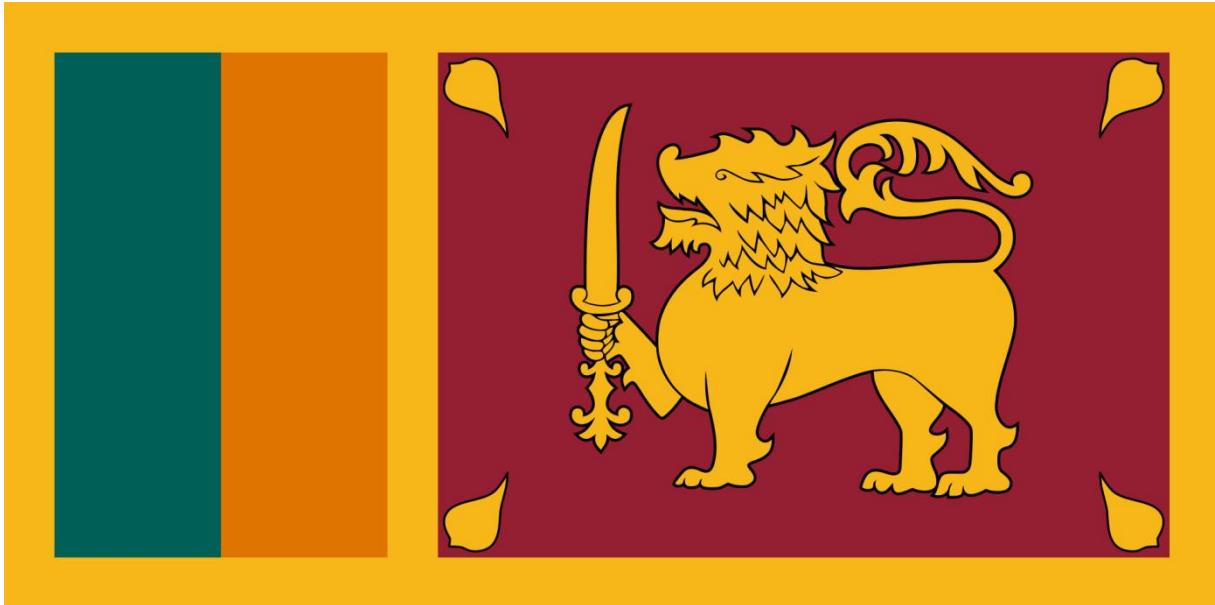


Illustration 50 - Flag of Sri Lanka (source: Wikipedia)



Illustration 51 - Image: Wikipedia

Sri Lanka is an island country located in South Asia, officially known as the Democratic Socialist Republic of Sri Lanka. As one can see from the image above, it is separated from the Indian subcontinent by the Gulf of Mannar and the Palk Strait.

It lies in the Indian Ocean, southwest of the Bay of Bengal and southeast of the Arabian Sea. As an island nation it only got maritime borders; it shares one with India and the other with the Maldives (location included for reference, see image beneath).



Illustration 52 - Image source: Wikipedia

Demography

[As of 2021](#)^(PDF), there live an estimated amount of 22,156,000 people in Sri Lanka.

Ethnic Groups of Sri Lanka

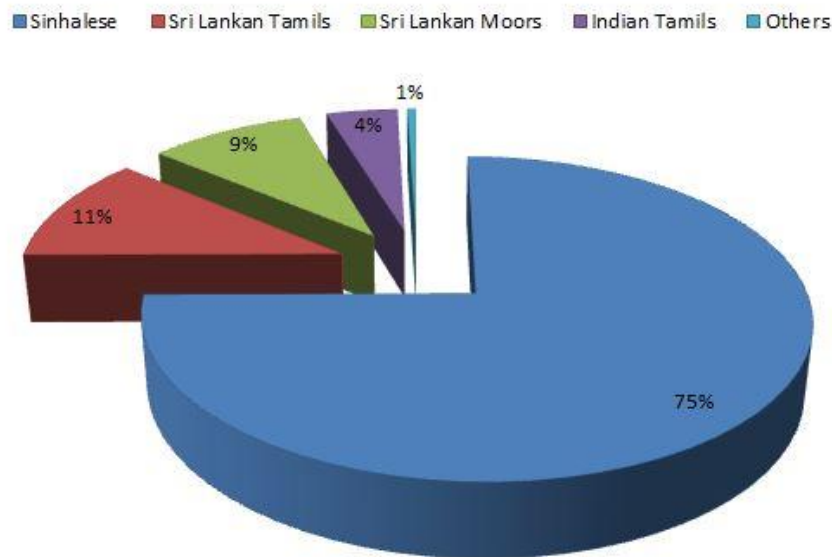
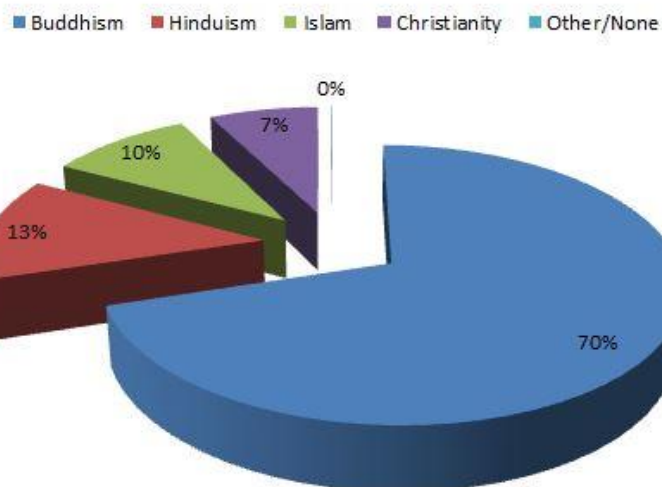


Illustration 53 - (source: The World Factbook)

Because Excel inclines to round up the percentages, here the unchanged one:

Sinhalese	74.90 %
Sri Lankan Tamils	11.20 %
Sri Lankan Moors	9.20 %
Indian Tamils	4.20 %
Others	0.50%

Religious Groups of Sri Lanka



The precise percentages of the religious groups:

Buddhism	70.20 %
Hinduism	12.60 %
Islam	9.70 %
Christianity	7.40 %
Other/None	0.10 %

History of Sri Lanka - From 1500 to 2022

1500

Arban, Indian, Malay and Chinese merchants dominate the trade in the Indian Ocean.

1505

The arrival of Portuguese ships was the beginning of the end of the relatively open trade competition. With their firepower and capacity for higher speeds, a policy of control was implemented.

In this year, Lourenço de Almeida (c. 1480-1508) and his fleet were blown into Colombo by adverse winds. There, he received a friendly audience from the King of Kotte, Vira Parakramabahu VIII (reign: 1484-1518).

1518

The Portuguese were allowed to build a fort at Colombo and gave trading concessions.

On the origins of the name Colombo, here an excerpt from an interesting article:

"Ask around, and many theories on the origin of the name "Colombo" can be found. Some say that the Portuguese derived it from the Sinhalese name "Kolon thota", which means "port on the river Kelani", another belief suggests that the name comes from the word "Kola-lamba", a word used by the early Sinhalese to describe a ford or harbour. The one which fits the coat of arms best, however, is the belief that the Portuguese simply named it after the abundance of mango trees surrounding the port at the time, deriving it from the Sinhalese phrase "Kola-amba-thota" which means "Port of the Mango trees" (source: [The Forgotten Fort Of Colombo](#))

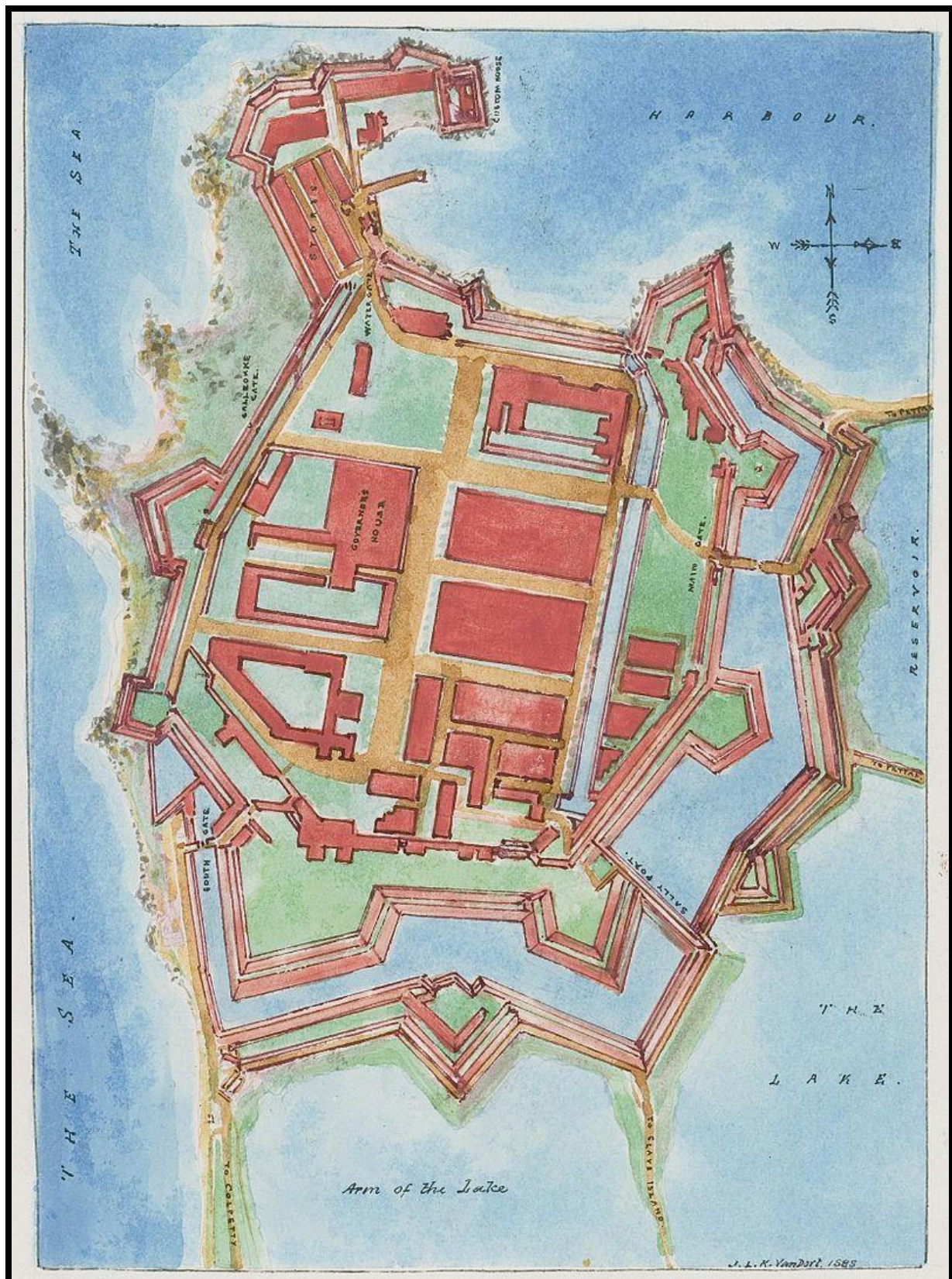


Illustration 54 - The oldest known copy of a map of the Colombo Fort by J. L. K. van Dort (1831-1898)
 (Image source: [Wikipedia](#))

1521

The reigning King of Kotte was killed by his three sons, afterwards they partitioned the kingdom among themselves. Bhuvanaika Bahu (1468-1550), the eldest son, ruled at Kotto while his brothers set up independent kingdoms at Sitawake and Rayigama. A conflict broke out between Bhuvanaika Bahu and Mayadunne of Sitawake, Bahu sought - and eagerly received - Portuguese assistance while his brother allied himself with the Zamorin who were *"an inveterate enemy of the Europeans"*.

1543

Agreement between Bahu and the Portuguese; Bahu received protection while the Portuguese kept their privileges and received a tribute in cinnamon.

1556/1557

Bahu's grandson, Prince Dharmapala, converted to Christianity after being educated by members of the Franciscan Order of the Roman Catholic Church. While he became even easier to control by the Portuguese, his conversion undermined the Kotto dynasty in the eyes of the people. Mayadunne's wars of aggression transformed into a struggle against Portuguese influence.

1560-1619

During this time, the Portuguese were able to tighten their grip on the island country. Following the death of Rajasinha in 1593, the son and successor of Mayadunne, the Sitawake kingdom disintegrated. The expedition into the kingdom of Jeffna (1215-1619 CE) in 1560 had no lasting effects, two other expeditions followed until it was finally annexed in 1619.

(Map on the next side)

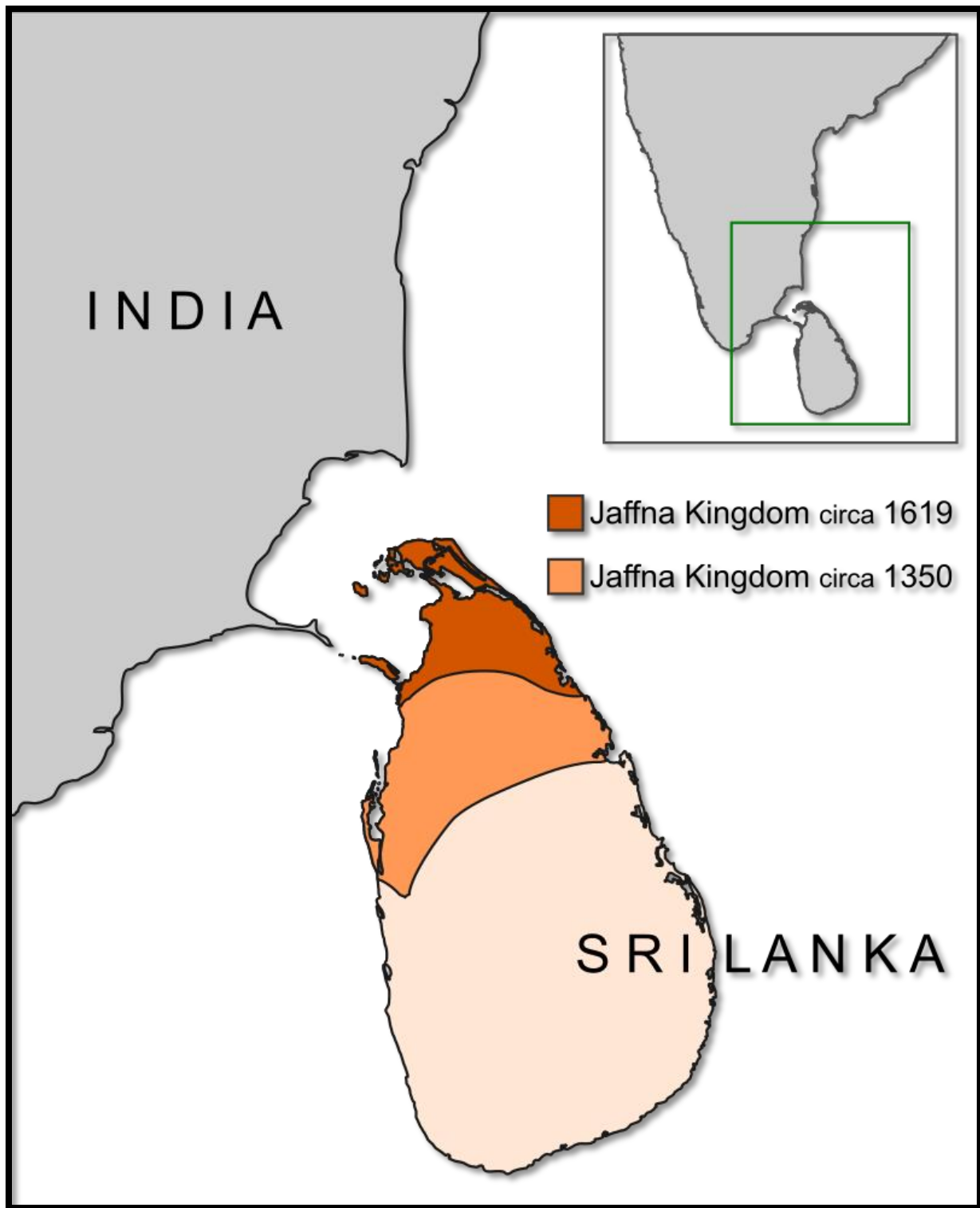


Illustration 55 - Map of the Kingdom of Jaffna, also known as Kingdom of Aryachakravarti
(source: [Wikipedia](#))

1604

Vimaladharmasuriya I of Kandy (reign: 1592-1604), who successfully repelled two major Portuguese offensives on Kandy, established himself and consolidated his authority in the Central Highlands and eastern coast. The Kingdom of Kandy would last until 1815.



Illustration 56 - Portrait of King Vimaladharmasuriya I
(Wikipedia)

1602-1658

In the early 17th century, the arrival of the Dutch heralded a new time in Sri Lanka. It ended with the Portuguese being replaced by the Dutch as the rulers at the end of the mid-17th century.

In 1602, Vimala Dharma Surya (see above) met with Joris van Spilbergen (1568-1620) who was part of the first Dutch convoy. Surya saw the arrival of the Dutch as an opportunity to gain naval support against his adversaries. When he died, his successor King Senarath continued to foster relations with the Dutch which led to treaty in 1612. However, the Dutch were unable to offer adequate assistance. So Senarath turned to the Danes, by the time they arrived in 1620 they were no longer required due to a peace treaty

with the Portuguese. A truce that didn't last long. This time, the Kandyan took the initiative and invaded Portuguese controlled territory and laid siege to Colombo and Galle in 1630. Due to the absence of a seapower, another peace was concluded in 1634.

In 1635, Senarath was succeeded by his son Rajasinha II. The Dutch who now were firmly established in Batavia (now Jakarta) in Java, developed a their trade fleet in southern Asia. Until 1640 they continued to work together to expel the Portuguese, this was temporarily halted when the Dutch Republic and Spain (which was ruled by Portugal at the time) declared truce in Europe. This incensed the King of Kandy and a war broke out in 1645 which lasted until 1649.

When the Dutch truce with the Portuguese ended in 1652, the Dutch resumed the war and continued the expulsion of the Portuguese until 1658 when Mannar was taken in February and Jaffna in June. Within 56 years, the old masters of coastal Sri Lanka were replaced by the Dutch.

1658-1796

The Dutch implemented their rule through the Dutch East India Company. While they were able to occupy and control the coastal lands of Sri Lanka (by 1665 expanding to the east coast thus controlling most of the cinnamon-growing land and the points of exit and entry on the island), they were never able to control the Kandyan Kingdom.



Illustration 57 - Dark blue = Dutch controlled areas (1689-1796)
Light blue = Kingdom of Kandy
(Wikipedia)

During the occupation of Sri Lanka, the country was divided into three administrative divisions: Colombo, Galle and Jaffna. Colombo was ruled by the governor (also the chief executive), while Galle and Jaffna were ruled by commanders.

They took decisive steps to incorporate the island into the emerging world economy, crops such as cinnamon and betel became important export items. Other exports included spices, lacquer, coconut oil, ropes of coconut fibres, and such sea products as cowrie and conch shells.

Contrary to Portugal, the Netherlands were ardently Protestants - Calvinist, to be precise - and they put great effort into undoing the missionary activities of Roman Catholicism. Roman Catholicism was declared illegal. Meanwhile, Buddhism experienced a revival - the Dutch indirectly helping by making the transport for Buddhist monks easier between Sri Lanka, Thailand, and the Arakan (Rakhine) region in southwestern Myanmar (Bumar).

More on the religion law and economy can be read [here](#) (Britannica).

1796-1900

During the French Revolution (1792-1801) the British East India Company began its conquest of Sri Lanka (called Ceylon). First considered a temporary occupation, its strategic value led to the decision of the British to make control permanent.

1796

The British establish contact with the King of Kandy and agree, for now, to protect the kingdom as the Dutch did.

1803

The first attempt by the British to capture the kingdom.

Reason: guarding the frontier of Kandy was expensive; the trade with the highlands was made difficult by customs post and political insecurity; and the land communication between West and East would go quicker if roads could be built through the center.

Result: the British failed due to the popularity of the king among the nobility.

1815

12 years later an opportunity arose for the British: growing dissensions within the kingdom enabled Britain to interfere in Kandyan affairs. With the help of local Kandyan chiefs, whose relations with the king had been deteriorating, the British conquered Kandy.

1818

While the British promised to keep traditional patterns, there was unmistakably a trend towards reducing the status of nobility and the Buddhist faith. This led to the '*Great Rebellion of 1817-1818*', also known as the 1818 Uva-Wellassa Rebellion.

The rebellion against British rule lasted from October 1817 to November 1818 and resulted in a British victory.

On Sri Lanka's side, the casualties mounted to 8,000 to 10,000.

On the British side, 900 to 2,000 casualties.

1833

A series of reforms were enacted which laid the foundation for the subsequent political and economic structure of Ceylon (as Sri Lanka was called).

- Abolition of slavery (institution that primarily existed due to unpaid debt)
- Unitary administrative and judicial system for the whole island
- Reduction of the autocratic power of the governor
- Executive and Legislative councils were set up -> shared task of government
- English became the language of the government and instructions in schools

In case you want to know about the emergence of capitalist agriculture in Sri Lanka, [this link](#) to Britannica contains the section.

1900-1983

By the end of the 19th century, Sri Lanka's society had been permeated by nationalist sentiment on the social, religious, and educational fronts. At the same time, revivalist Buddhist and Hinduist movements sought to modernize their institutions and set up schools to defend themselves against Christian inroads and keep Western education unmixed with Christianity.

1910

While the national consciousness spread, the demands were neither coordinated nor vociferous. The imperial government ignored them and the constitutional reforms passed at the time kept the old structure, along an appointed executive and a legislature with an appointed majority. There was only a limited recognition of the elective principle:

- An "educated Sri Lankan" electorate to elect one member to the Legislative Council
- Other Sri Lankan members appointed on a communal bases

"The colonial government was petitioned for permission to have Sri Lankan representation in the Executive Council and expanded regional representation in the Legislative Council. In response, the colonial government permitted a modest experiment in 1910, allowing a small electorate of Sri Lankans to send one of their members to the Legislative Council. Other seats held by Sri Lankans retained the old practice of communal representation."

(source: [countrystudies](#))

1914-1918

During the First World War, nationalism in Sri Lanka gathered momentum - largely propelled by civil disturbances in 1915 and the subsequent political repercussions.

The arrest of prominent Sinhalese leaders, in what was considered a minor communal riot, led to widespread opposition.

1919

The Ceylon National Congress (Sinhala: ලංකා ජාතික කොන්ග්‍රසය, *Lanka Jathika Kongrasaya*) was formed on December 11. The founding president was Ponnambalam Arunachalam (1853-1924) who was president of the Ceylon National Congress from 1919-1920.



Illustration 58 - Photo: Wikipedia

1920

The governor Sir William Manning (1863-1932) announced a new constitution.

1924

Constitution modified to satisfy nationalist demands.

- Elected majority in the legislature
- Increase of the number of territorially elected members
- Formation of a finance committee of the legislature:
 - > three unofficial and three official members
 - > authority to examine the budget
- No major concessions in the executive branch
 - > Britain retained the role of the British governor and the official Executive Order

1931

Another constitutional reform:

- State Council with legislative and executive functions
 - > vast majority of territorially elected members
 - > executive work had 7 committees, each elected their own chairman
 - > formation of board of ministers to coordinate activities
 - > authority to present an annual budget
- Universal suffrage

Another view on the constitutional reforms by Britain:

"The British attempted several other Constitutions to appease the populace in 1910, 1920, and 1924, but these constitutions did not provide for local governance by the native population. The 1931 Constitution finally gave more authority to the native elected representatives over internal concerns. Over the next 40 years, the British attempted to give more authority and independence to the island in the hopes of transferring it to dominion status within the British Empire." (source: [Constitutional history of Sri Lanka](#))

1944

Appointment of the Soulbury Commission by Britain to develop a new constitution. Internal self-governance was granted, but Britain kept some imperial safeguards and in defense and external affairs.

1947

Ceylon Independence Act confers dominion status on the colony, thereby Sri Lanka (still Ceylon for the British at the time) recognized it as an autonomous entity with allegiance to the British crown.

February 4, 1948

The constitution of 1947 comes into effect: *"The constitution provided for a bicameral legislature with a popularly elected House of Representatives and a Senate that was partly nominated and partly elected indirectly by members of the House of Representatives. A prime minister and his cabinet, chosen from the largest political group in the legislature, held collective responsibility for executive functions. The governor-general, as head of state, represented the British monarch. In matters that the constitution failed to address, the conventions of the United Kingdom were observed."* (source: [Britannica](#))

1956

In the elections, the UNP was defeated by the Sri Lanka Freedom Party (SLFP). The party was led by Solomon West Ridgeway Dias Bandaranaike (also: S. W. R. D. Bandaranaike). Following policies were implemented, with the intent of changing the political structure:

- Sinhalese became the official language
- State support for Buddhism and Sinhalese culture

The state was given a powerful role in economic development and the creation of economic equality. However, it was also a time of instability due to Sinhalese nationalism.

The Tamils were alienated by the language policy, and the educational policies upset the the small but influential Christian minority.

1959

S. W. R. D. Bandaranaike (1899-1959) was assassinated. A period of instability followed.



Illustration 59 - Official Photographic Portrait of Bandaranaike
(Wikipedia)

1960

Sirima Ratwatte Dias Bandaranaike (also: Sirimavo Bandaranaike, 1916-2000) was persuaded to unite the fragments of the SLFP. One year after the assassination she formed a government and thus became the first female Minister President in the world.

She continued Sinhalese nationalism and implemented policies to nurture and support local industry, as well as extending the state sector. Most private schools were nationalized and subsidies to any remaining private schools discontinued.



Illustration 60 - Sirimavo Bandaranaike
(source: [Library of Congress](#))

1965

Sinhalese nationalism began to recede and an economic crisis made language and religion less important issues. The crisis was caused by increasing unemployment, the rising cost of living, an acute shortage of consumer goods and the failure of state enterprises in industry and trade. People started looking back to the UNP and the party gained the support of minorities.

In the end, they returned to power for five years under Dudley Shelton Senanayake (1911-1973). During his term he encouraged private businesses and put effort into expanding agricultural activity. While these measures had moderate success, they also tended to create inflation and increased social inequality.

1970

D. S. Senanayake's governance resulted in the SLFP forming an alliance with Marxist parties, they advocated for more state control of the economy and won the election in 1970 with a landslide victory. For a second time, Sirimavo Bandaranaike became Prime Minister of Sri Lanka.

Reforms that restricted private enterprises and extended nationalization of native and foreign-owned companies were passed. Additionally, measures aimed at reducing inequality and an ambitious land reform was put into effect. The implement policies benefited the vast majority of underprivileged, however, they didn't address problems such as the mounting trade deficit.

1971

Unsuccessful armed rebellion of the People's Liberation Front (Janatha Vimukthi Peramuna; JVP). The rebellion lasted from April 5 to June 1971.

Sri Lanka	JVP
<ul style="list-style-type: none">- Police: 37 killed; 195 wounded- Armed forces: 26 killed; 310 wounded; 1 aircraft lost	<ul style="list-style-type: none">- 5,700 surrendered- Several North Korean diplomats arrested, supply vessels captured by the Sri Lankan navy and Indian navy- Several leaders arrested

1972

A new constitution was adopted and Ceylon became the Republic of Sri Lanka, it still maintained its link with the British Commonwealth. Following changes were made:

- Bicameral legislature to unicameral body
- governor-general (extension of British crown) was replaced with a president as head of state
- All existing restraints on the lawmaking powers were removed
- Buddhism was preferred in the constitution
- Sinhalese became the official language

1977

Unemployment at 15%; the economic power of the state resulted in patronage, nepotism and corruption. As a consequence, the UNP defeated the SLFP in the election in July. Junius Richard Jayewardene (1906-1996) became Prime Minister.

1978

The UNP reversed the trend towards state control; the private sector was revived to attract foreign capital.

A new constitution passed in August which renamed the country the Democratic Socialist Republic of Sri Lanka. Overall, it has 172 articles (yes, it is still exists) and the president received broad executive powers. It recognized Buddhism as the state religion and Tamil was recognized as a national language as well, Sinhalese remained the official language.

Under the new constitution, J. R. Jayewardene was elected as the first president.

1980-1983

In the 1980s, the political unrest in Sri Lanka escalated which would eventually lead to a devastating civil war.

The Tamil minority moved toward organized insurgency. They built bases in jungle areas in the northern and eastern parts of the island, as well as in the southern districts of the Indian state of Tamil Nadu where they received unofficial and official support.

While there were different competing groups, sometimes hostile to each other, the Liberation Tigers of Tamil Eelam (LTTE) was the strongest.

The Sri Lankan government deployed forces to the East and North, but as insurgencies erupted, anti-Tamil riots were organized in Colombo and elsewhere. *"Sinhalese mobs systematically attacked Tamils and destroyed Tamil property, and the riots forced refugees to move within the island and from Sri Lanka to Tamil Nadu."* (Britannica)



Illustration 61 - Logo of the LTTE
(Wikipedia)

23rd July, 1983 - 19 May, 2009

July 29, 1987

Accord between Sri Lanka and India that offered Tamils an autonomous integrated province. Later in the same year, Tamil was recognized an official language alongside Sinhalese through a constitutional amendment. Indian Peace-Keeping Force (IPKF) and LTTE disagreed over implementation of the accord, so the LTTE resumed its offensive. Now, the IPKF was the target which was trying to disarm it.

January 1989

J. R. Jayawardene retired and was succeeded by Ranasinghe Premadasa (1924-1993) who won in the 1988 elections against Sirimavo Bandaranaike.

March 1990

Premadasa negotiates the withdrawal of the IPKF. From this point on, the Sri Lankan army went into battle against the Tamil insurgency.

May 1, 1993

A suicide bomber assassinates Premadasa, allegedly linked to the LTTE. Dingiri Banda Wijetunga (1916-2008), the Prime Minister, was appointed acting president.

1994

Chandrika Kumaratunga (* June 29, 1945), daughter of S.W.R.D. and Sirimavo Bandaranaike, became the first female president.

1999

Assassination attempt on Kumaratunga leaves her injured. She won reelection later that year.

2002

The LTTE and Sri Lankan government agree on a landmark ceasefire, however, it was short-lived and within a few years violence resurfaced.

2005

A broad coalition called the United People's Freedom Alliance (UPFA) appointed Mahinda Rajapaksa president who was known for his strong stance against the LTTE.

2006

The European Union declares the LTTE a terrorist organization.

January 2008

Ceasefire was formally abandoned by the government; fighting intensified.

January 2009

Kilinochchi, a town that was the administrative center of the LTTE, comes under control of the government.

Late-April to mid-May 2009

Rebels were cornered along the northeast coast after government troops advanced into LTTE-territory. In the last days in mid-May, the LTTE-leaders (including the founder Vellupillai

Prabhakaran) were killed during an operation, thus the LTTE also effectively ceased to exist as an organization.

2009-2021

After the civil war, Sri Lanka fluctuated between recovery and reconstruction and new crises. This period starts with the government's victory over the LTTE which made it highly popular, and ends with the resignation of Rajapaksa in the last section of this entry as well as the mass protests that led to it.

2009

High popularity of the government due to victory over the LTTE; UPFA won several elections in provincial and local regions.

2010

In January, Rajapaksa faces fierce opposition from Gardihera Sarath Chandralal Fonseka (* December 18, 1950). Fonseka is arrested in early February for charges from events prior to his retirement as general (previously, he challenged the results when Rajapaksa gained a second term). In September, an amendment was added to the constitution which extended the powers of the president and removed term restrictions.

2012

In his second term, Sri Lanka's economy improved and showed sustained growth as well as reduced poverty levels. Though there were concerns about ballooning debt and overreliance on foreign investment, especially from China.

His administration implemented repressive measures against political opponents and various forms of dissent, at the same time he centralized executive power and nepotism returned.

2014

In order to secure a third term, Rajapaksa called for an early election. Confident that he'd win, despite his popularity waning. Palawatte Gamaralalage Maithripala Yapa Sirisena (*September 3, 1951), a member of his cabinet, unexpectedly defected to the opposition and ran against him. Other UPFA members defected as well.

2015

Sirisena scored a victory and formed a six-party coalition. The constitution was amended and returned to the term limit.

2016-2018

In June, the government acknowledged that some 65,000 people, who had gone missing during the civil war, still remained unaccounted for. Certificates of absence were distributed to the families with missing relatives.

The immense debt led to balance-of-payments crisis in 2016. It arranged a \$1.5 billion bailout with the International Monetary Fund (IMPF) and sought to increase tax revenue. In 2017, the situation got worse and it led to leasing the newly built Hambantota port to China for 99 years. Moreover, a \$1 billion loan was accepted from China to help repay loans.



Illustration 62 - View on the Hambantota Port
(source: [cargobreakingnews](#))

April 21, 2019

On Easter morning, eight explosions occurred nearby churches and hotels.

On the next day, another bomb detonated near a church, other explosives were discovered and neutralized. More than 260 people, including five Americans died.

Following the attacks, a four-month state of emergency was declared and the government used the Prevention of Terrorism Act (PTA) passed in 1979 as a war-time measure.

Under the PTA, more than 1,000 individuals were arrested and 100 remained in custody until the year's end. The initiator of the attack was a little-known Islamist militant group.

(source: [Country Reports on Terrorism 2019: Sri Lanka](#))



Illustration 63 - One major target was St. Anthony's Shrine
(Wikipedia)

November 2019

Sri Lankans lost faith in the government due to its ineffectiveness to address the debt crisis, its political instability and its inability to prevent the Easter attacks.

Mahinda Rajapaksa and his brother Gotabaya won on the promise of stability, progress and security - the latter becoming the president. However, he lacked support from Tamil and Muslim voters who feared restoring power to a family known for their brutality during the civil war. Gotabaya appointed Mahinda to be the prime minister.

2020-2021

During the first-wave of the Covid-19 pandemic, Sri Lanka performed better than other South Asian nations by implementing quick and aggressive measures such as an early nationwide lockdown and high rates of testing.

The legislative elections were delayed into August and voters were asked to bring their own pen to prevent the spread of Covid-19. Rajapaksa's party (SLPP) nearly won two-thirds of the parliamentary seats. This gave them the opportunity to expand the powers of the president even further through amendments to the constitution.

In 2021, the outbreak of the Delta variant resulted in a massive surge of cases. Then, in May, the government banned the import of chemical fertilizers and pesticides while giving only little warning to farmers. The decrease in crop production led to a run on markets which in turn strained the already debt-laden economy. In November, the ban was lifted.

2022

Currently, Sri Lanka is not only struggling with a mere debt crisis, but also food shortages, rapid inflation, a deficit that has ballooned due to the tax cuts in 2019 and fuel prices that have rocketed since Russia launched its invasion of Ukraine in February 2022.

In March protests broke out and escalated in the weeks that followed. In early April, the Rajapaksas attempted to reshuffle the cabinet: family members gave up their ministerial positions and the opposition was invited to join. However, the opposition called for a complete removal of the Rajapaksas. As members of the coalition started to defect, they appeared to have the upper hand.

May 10

Amid mass protests, the Prime Minister Mahinda Rajapaksa resigned. After violent clashes in the capital, five people died (including an active party MP) and 190 were injured ([BBC](#)).



Illustration 64 - (Photo from the BBC article)

July 11

On Sunday, protesters stormed the president palace and have occupied it since then. People continue to stream in ([Associated Press](#)).



Illustration 65 - (source: Swisher Post)

Concluding Sentence

I hope this blog entry was able to meet your expectations. Constructive criticism is always welcome, my email is on this website as well (see contact). It was fascinating to write about Sri Lanka's history and it is time I consider well-spent.

Sources

Main source for the timeline:

<https://www.britannica.com/place/Sri-Lanka/History>

Population of Sri Lanka (PDF)

<http://www.statistics.gov.lk/Population/StaticalInformation/VitalStatistics/ByDistrictandSex>

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<https://www.cia.gov/the-world-factbook/countries/sri-lanka/#people-and-society>

The Forgotten Fort of Colombo

<https://roar.media/english/life/srilanka-life/the-forgotten-fort-of-colombo>

Dutch Rule in Sri Lanka (1685-1796)

<https://www.britannica.com/place/Sri-Lanka/Dutch-rule-in-Sri-Lanka-1658-1796>

Sri Lanka - British Ceylon (1796-1900)

<https://www.britannica.com/place/Sri-Lanka/British-Ceylon-1796-1900>

Constitutional Reform of 1910

<http://countrystudies.us/sri-lanka/17.htm>

Constitution of Sri Lanka (Reforms)

<https://constitutionnet.org/country/sri-lanka>

Growth of nationalist power

<https://www.britannica.com/place/Sri-Lanka/Growth-of-nationalist-power>

Death toll of the Sri Lankan civil war (HRDAG - Human Rights Data Analysis Group)

<https://hrdag.org/srilanka/>

Country Reports on Terrorism 2019: Sri Lanka

<https://www.state.gov/reports/country-reports-on-terrorism-2019/sri-lanka/>

Sri Lanka's Prime Minister resigns

<https://www.bbc.com/news/world-asia-61381536>

Sri Lankans storm the president palace

<https://www.msn.com/en-us/news/world/taking-selfies-sri-lankans-converge-on-presidential-palace/ar-AAZshS5>

(Released: 11th July 2022, 23:42 Uhr/11:42 pm)

Taiwan: History from 1683-2022 and the Chinese-Taiwanese Conflict

In this blog entry, we will learn about the history of Taiwan from its annexation by China's Qing Dynasty in 1683 to Taiwan's vote on removing symbols of its authoritarian past in December 2017. As well as the current rising tensions between the two countries.

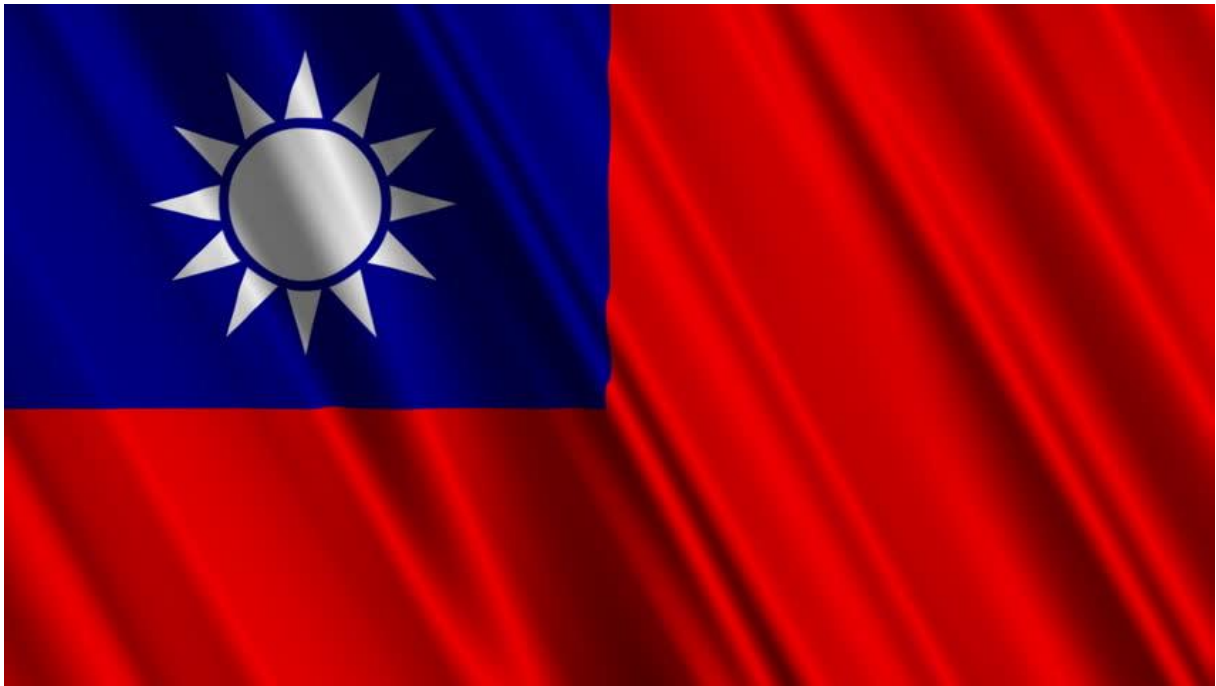


Illustration 66 - Flag of Taiwan

Image: [shutterstock](#)

Geographic Location

Taiwan, officially called the Republic of China (ROC), is located in East Asia at the junction of the East and South China Seas in the northwestern Pacific Ocean. To the Northwest is the People's Republic of China, to the Northeast Japan and the Philippines to the South. Next to the main island, it controls a territory of 168 other islands.



Illustration 67 - Image: Wikipedia

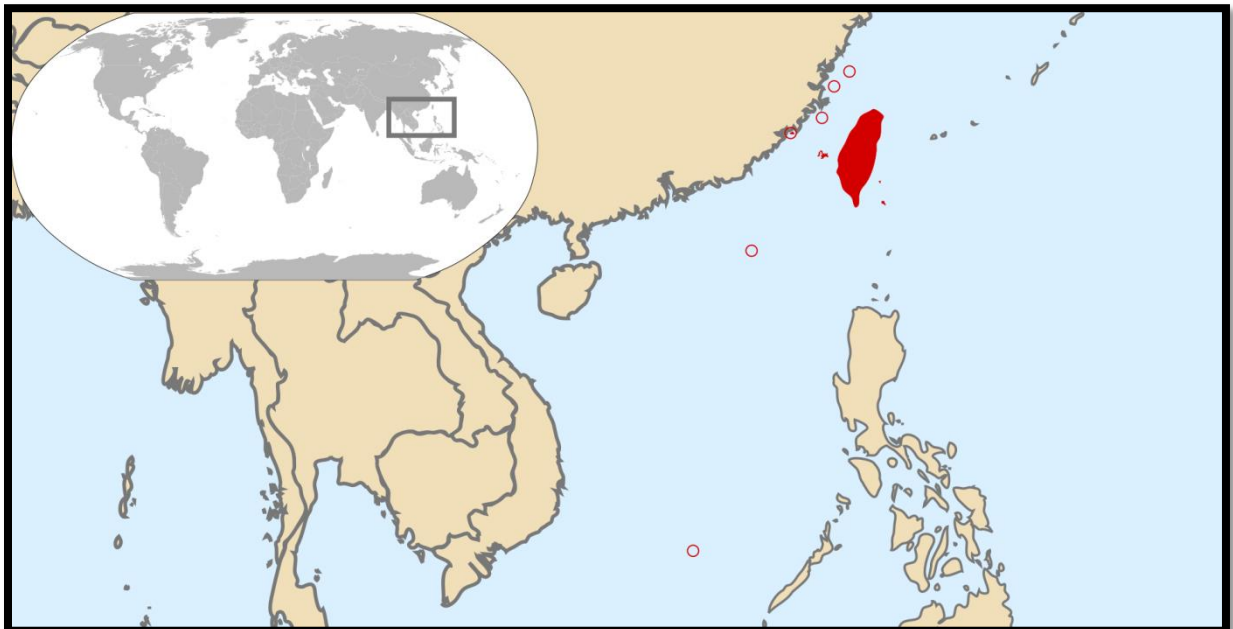


Illustration 68 - Taiwan with its administered territories
Image: [Wikipedia](#)

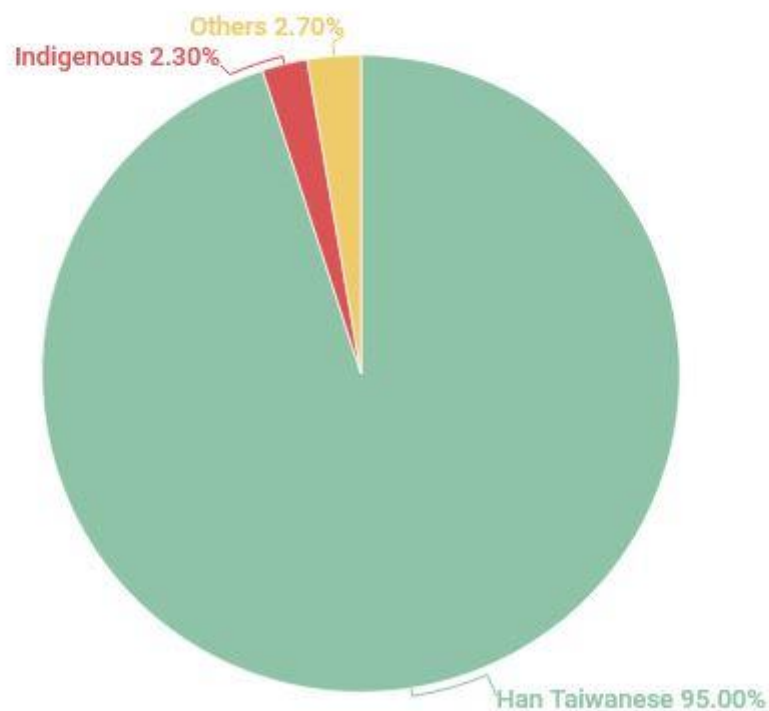
Demography

There live around 23,580,712 people in Taiwan (2022 estimate).

There are 16 officially recognized indigenous groups: Amis, Atayal, Bunun, Hla'alua, Kanakaravu, Kavalan, Paiwan, Puyuma, Rukai, Saisiyat, Sakizaya, Seediq, Thao, Truku, Tsou, and Yami; Amis, Paiwan, and Atayal are the largest and account for roughly 70% of the indigenous population.

Ethnic Groups of Taiwan

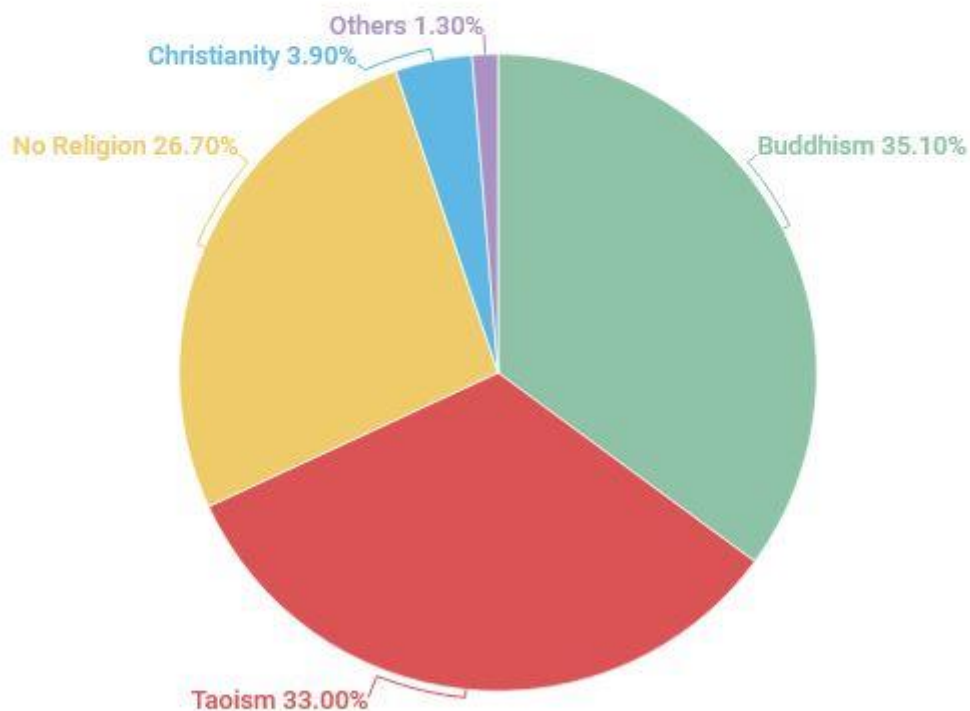
Mixed indigenous-Han ancestry is included in the figure for Han Taiwanese



source: https://issuu.com/eyroc/docs/the_republic_of_china_yearbook_2016

Religious Groups of Taiwan

The Pew Research link on the primary source leads to nowhere (for some reason), so here's the CIA Factbook too (unfortunately conflicting information): Buddhist 35.3%, Taoist 33.2%, Christian 3.9%, folk religion (includes Confucian) approximately 10%, none or unspecified 18.2% (2005 est.)



source: <https://www.cia.gov/the-world-factbook/countries/taiwan/> and Pew Research

Illustration 70 - (unsure whether I will use infogram again)

History of Taiwan

1683

Annexation of Taiwan by China's Qing Dynasty*.

Until then, the island was divided between aboriginal kingdoms and Chinese and European settlers, the Dutch were the most common amongst the Europeans.

*The Qing Dynasty lasted from 1644 to 1912, it was the last dynasty of China.

It ended on January 1. 1912, and the last emperor of China - Emperor Pu Yi - died on October 17. 1967.

1895

Taiwan is ceded to Japan after the First Sino-Japanese War (25th July 1894 - 17th April 1895), as well as other territories.

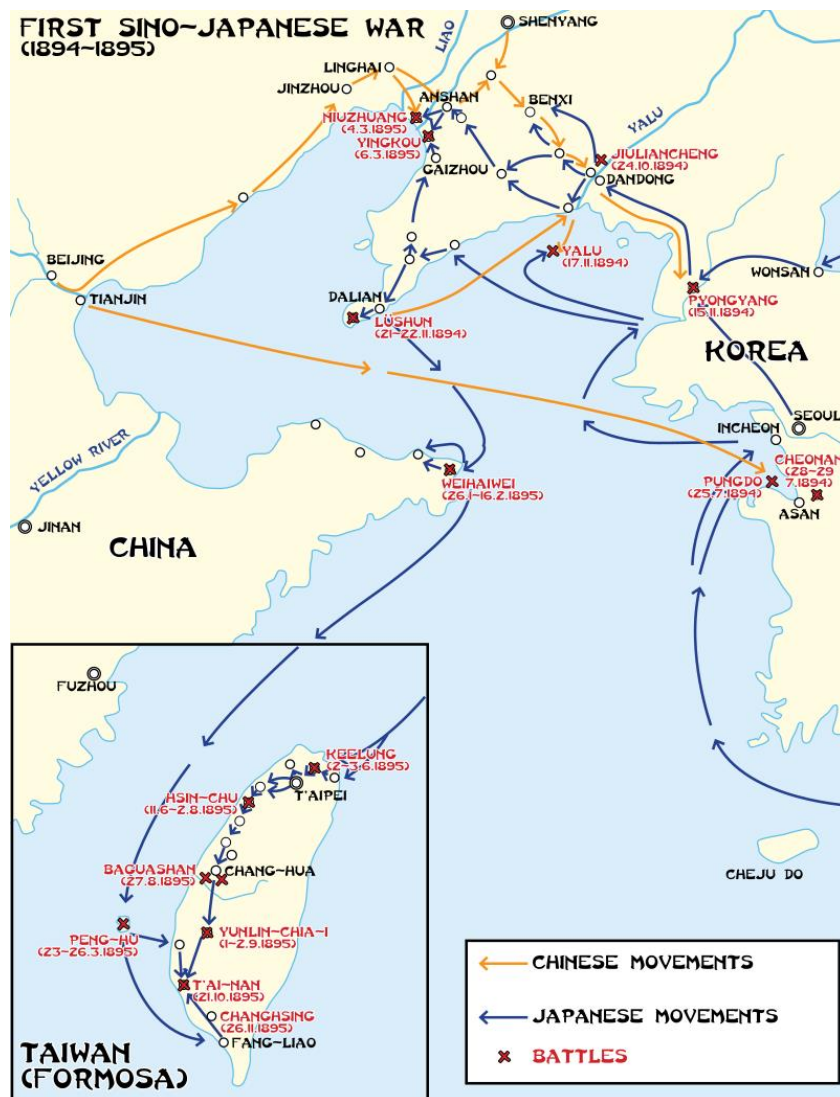


Illustration 71 - Major Battles and Troop Movements during the First Sino-Japanese War

Image: [Wikipedia](#)

1915

The Tapani Incident* prompts Japan to reform its administration of the settled population, which turns to civic and and political activity. The treatment of the aboriginals by the Japanese remains harsh.

*In Taiwan this event is still in the public mind in the form of the [Tapani Incident Memorial Park](#) ([噶吧哖事件紀念園區](#)). It is also known as the Xilaian Incident.



Illustration 72 - source: travel taiwan

1930

The Wushe Rebellion*, the last aboriginal uprising, is crushed by Japanese troops.

"On the 27th of October 1930, 6 Tkdya villages of the Seediq people (the Mehebu, Truwan, Boarung, Suku, Gungu, and Drodux) seized the opportunity afforded by a sports contest which brought many high-ranking Japanese officials together, and a large-scale anti-Japanese incident began. In this incident 134 Japanese were killed (there were also two Taiwanese who were accidentally killed due to their attire), and 215 injured. Many of the police stationed in different areas of the Wushe (霧社) region were attacked by aborigines, and the entire Wuhe area was occupied by the aborigines. [...]"

A total of 644 people died (of which 296 people killed themselves). After the incident, more than 561 survivors from the above six villages and a small number of scattered Toda and Truku were forced to move into Sipo and Drodux village shelters."

(source: [taiwanpedia](#), waybachmachine)



Illustration 73 - Seeqid costumes
(image source: Wikipedia)

1942

All treaties with Japan are renounced by the Chinese Kuomintang government*, they also demand to return Taiwan as part of any post-war settlement which is endorsed by the Allies in the Cairo Declaration** one year later.

*The Chinese Kuomintang's government was a government led by the [Nationalist Party](#) whose leader was Sun Yat-sen (1866-1925). It ruled mainland China from 1928 to 1949.

**The [Press Communiqué](#) is short, so I include it here in its entire length:

President Roosevelt, Generalissimo Chiang Kai-Shek and Prime Minister Churchill, together with their respective military and diplomatic advisers, have completed a conference in North Africa. The following general statement was issued:

"The several military missions have agreed upon future military operations against Japan. The three great Allies expressed their resolve to bring unrelenting pressure against their brutal enemies by sea, land and air. This pressure is already rising.

"The three great Allies are fighting this war to restrain and punish the aggression of Japan. They covet no gain for themselves and have no thought of territorial expansion. It is their purpose that Japan, shall be stripped of all the islands in the Pacific which she has seized or occupied since the beginning of the first World War in 1914, and that all the territories Japan has stolen from the Chinese, such as Manchuria, Formosa, and the Pescadores, shall be restored to the Republic of China. Japan will also be expelled from all other territories which she has taken by violence and greed. The aforesaid three great powers, mindful of the enslavement of the people of Korea, are determined that in due course Korea shall become free and independent.

"With these objects in view the three Allies, in harmony with those of the United Nations at war with Japan, will continue to persevere in the serious and prolonged operations necessary to procure the unconditional surrender of Japan." (November 26, 1943)

1945

After Japan surrendered, the allies put Taiwan under the administrative control of the Republic of China.

1947

The discontent with the centralised rule by Kuomintang mainlanders results in the 228 Incident* (February 28th). This anti-government uprising lasted from the 28th February 1947 to 16th May 1947 and was violently suppressed by the Kuomintang.

Chinese authorities imposed martial law during that time, killed a large number of protesters who demanded free elections and clean government (between 18,000 and 28,000) and banned thousands of others from political activity.

*I found a website called the [228 Massacre](#) writing about it in detail, in the "About" section they explain the project: *"The 228 Massacre Info Project was started and led by an amalgamation of Taiwanese, diaspora, and expats in hopes to explain, share, and examine the stories of 228 and the various subsequent movements that led to Taiwan's democratization."*

1949

The Chinese Communist Party emerges victorious from the Chinese Civil War. Following the victory, the Kuomintang government along with two million refugees, evacuate to Taiwan and dominate the island until the end of martial law in 1987.

Until the 1970s, Taiwan is seen as the legitimate government of all of China.

1950s-1960s

The rapid industrial development is stimulated by export-orientated policy and US economic aid, meanwhile the Nationalist Party justifies one-party rule on the grounds of opposing any communist threat.

1971

Chiang Kai-shek (1887-1975), leader of the Kuomintang, rejects the dual-representation deal. As a consequence, the People's Republic of China under Mao Zedong takes over China's UN Security Council seat and is recognized as sole government of the whole country.



Illustration 74 - Chiang Kai-shek in his uniform, 1943 (colourized)
(source: Wikipedia)

1975

After his father's death, Chiang Ching-kuo (1910-1988) begins a cautious policy of liberalisation, including the promotion of more native Taiwanese to positions of authority.

1977

The Tangwai (Outside the Party) group achieve the first opposition breakthrough at parliamentary elections.

1979

In what is known as the Kaohsiung Incident*, pro-democracy protesters were killed by the police and all available opposition leaders arrested. This measure draws international to the repressive rule of the Kuomintang.

*The Kaohsiung Incident occurred on December 10, 1979.

Here an excerpt from an article of the [Taipei Times](#):

"Thus, in retrospect, the Kaohsiung Incident laid the foundation for this momentous transition. Taiwanese can be thankful that it was a relatively peaceful change.

At the same time, those who made the ultimate sacrifice must be remembered: Lin I-hsiung (林義雄), whose mother and twin daughters were murdered in their home in broad daylight on Feb. 28, 1980, while their house was under strict police surveillance; Carnegie Mellon University assistant professor Chen Wen-chen (陳文成), who was found dead at National Taiwan University on July 3, 1981, after having been "interviewed" by the Taiwan Garrison Command; Deng, who set himself on fire rather than being arrested by police storming into his office on April 7, 1989; and Dr Wang Kang-lu (王康陸), a leading Taiwanese-American independence activist who died in a mysterious "car accident" in Taipei on Oct. 12, 1993.

In addition to laying the foundation for Taiwan's democracy, the Kaohsiung Incident and its aftermath also played an important role in cementing international support for Taiwan and its vibrant democracy. It showed the world that Taiwanese were willing and able to build a stable, multi-party democratic system."

1980

Opposition leaders were sentenced to long prison sentences over the Incident.

1986

The Democratic Progressive Party is not prevented from organizing by authorities, despite the ban on opposition parties. Their candidates stand in the elections under Tangwai banner.

1987

Martial law is abolished by Chiang Ching-kuo and families are allowed to visit China mainland.

1988

Death of Chiang Ching-kuo. His chosen successor, Lee Teng-hui (1923-2020), dismantles many structures left from 1949 through his 'Taiwanisation' policy and relaxes restrictions on native language and culture.



Illustration 75 - Official Portrait, 1999
(source: Wikipedia)

1996

In free elections, Lee Teng-hui beats his opponent Peng Min-ming of the Democratic Progressive Party. The People's Republic of China attempts to disrupt the election through missile tests, the US dispatches aircraft carriers to the region.

2000

In March, Chen Shui-bian (*12 October, 1950) wins the presidential elections. Thus ending the 50-year monopoly of power of the Kuomintang.



Illustration 76 - Chen Shui-bian
(image source: Wikipedia)

May 2000 - April 2001

In his inaugural speech, Chen Shui-bian says that he will not declare independence as long as China doesn't attack. Neither will he call for a referendum on independence nor abolish Taipei's official blueprint for an eventual reunion with mainland China.

China accuses him of insincerity by saying that he evaded the key question whether he considers Taiwan part of China.

In August he stops briefly in the United States before his two-weeks tour of Central America and Africa. He receives no official welcome.

In October the construction of a nuclear power plant is halted. The government argues that it wouldn't be a safe source of energy (the previous government approved and started it). In the same month, Prime Minister Tang Fei resigns over the plan to scarp the nuclear power plant, he is succeeded by Chang Chun-hsiung.

April 2001, the Dalai Lama meets President Chen during a visit which is strongly opposed by China. The United States confirm the sale of submarines, warships and anti-submarine aircraft, but not the requested naval combat radar system Aegis. President George W Bush pledges to support Taiwan should China invade.

June 2001 - November 2003

In June of the same year, Taiwan test-fires Patriot anti-missile defence system bought from US while China carries out military exercises simulating the invasion of island.

An excerpt from an article regarding China's military exercises in November of that year:

"The exercises set up a scenario of the PLA's taking over an outlying island, in which missiles, fighter jets, warships, armoured vehicles as well as electronic command systems were used.

Citing a military briefing, the paper reported earlier that the exercise was to simulate the seizure of Penghu.

"If the condition calls for the use of force to resolve the issue of Taiwan, the PLA will first of all take Penghu", believed to be of strategic importance, the daily cited military experts as saying.

They added that there were no plans "now or in the future" to take over Jinmen and Mazu, islands which lie close to the mainland." (source: china.org, 8th November 2001)

In November 2001, Taiwan lifts a 50-year ban on direct trade and investment with China. In December, the Nationalist Kuomintang (KMT) party loses its parliamentary majority for the first time.

January 2002, a few weeks after China Taiwan officially enters the World Trade Organisation.

May 2003, a drastic increase of the pneumonia-like Sars virus.

In July it is removed from the WHO's list of countries that were badly affected by the Sars virus. Four months later, Taiwan unveils the 508-metre Taipei 101 building.



Illustration 77 - From 2004 to 2009, it was the tallest building in the world
(image source: Wikipedia)

In November, the parliament approves a bill which allows for a referendum on declaring independence should China attack. However, referendums on the sovereignty and changing the country's name are not approved.

March 2004 - July 2005

President Chen Shui-bian wins a second term by a thin margin (50.11% vs 49.89%, his opponent was Lien Chan). His victory follows an apparent assassination attempt against him on the eve of the election.

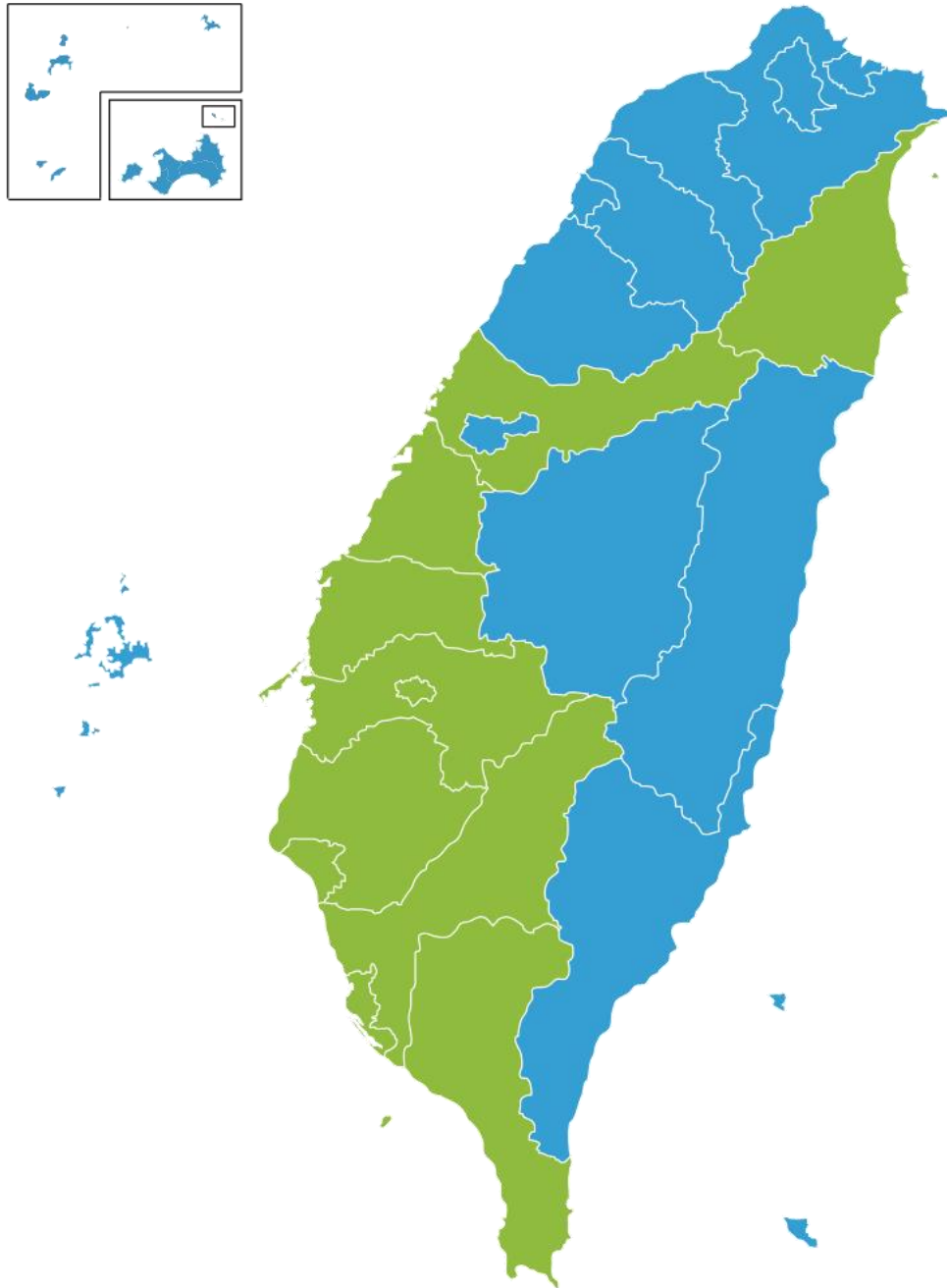


Illustration 78 - Green: Chen-Lu ticket; blue: Lien-Soong ticket
(Image: Wikipedia)

In November the court rejects the opposition challenge that President Chen Shui-bian won March's presidential election unfairly.

January 2005, the first direct flight between Taiwan and China since 1949 for the Lunar New Year Holiday*.

In March, Beijing passes a law that would give it legal right to use force should Taipei declare formal independence. This is condemned by Taiwan.

In April, the leader of the National Party Lien Chan visits China. This is the first meeting between Nationalist and Communist Party leaders since 1949.

In June, a reform requiring future constitutional amendments to be put to a referendum arouses China's concern that it will be easier for activists to promote moves towards independence.

One month later, the National Party (KMT) elects mayor of Taipei Ma Ying Jeou (*13 July, 1950) as its new leader.

*The New Lunar Year Holiday is one of the largest holidays in many East and Southeast Asian countries. The customs, on the other hand, vary from country to country. Here the traditions of the New Lunar Year Holiday in China ([from Yahoo](#)):

"Chinese New Year is known as Chunjie, or the spring festival. Preparations for the 15-day celebration begin weeks in advance, starting with an obligatory [spring cleaning](#) which is thought to sweep away bad luck from the past year. It is customary to [decorate with the color red](#) during Chinese New Year because it is a symbol of good luck. (Children are even given money in red envelopes called hong bao for protection and good fortune.)

There are different activities, traditions, food, and superstitions for each of the 15 days. According to Chinese New Year, the [second day of Chinese New Year is reserved for visiting the in-laws](#) on the mother's side of the family, since married daughters were considered a part of the husband's family in ancient China and cannot spend Chunjie with her parents. The times have changed, but the tradition of spending the second day with the mother's side of the family is still a special custom that many families keep. The celebration concludes on the 15th day with the Lantern Festival, where children carry around lanterns and families eat glutinous rice balls together.

But the reunion dinner on New Year's Eve is perhaps the most important event of the holiday, as it's the only time of the year many people can travel home and spend time with their families. Many of the dishes served at the reunion dinner and throughout the holiday carry important meaning. According to Food Network, [fish signifies wealth and prosperity](#) as the Chinese word for "fish" sounds similar to the word for "plenty." Other traditional fare includes; rice cakes, which symbolize success in one's career; oranges which symbolize good fortune; dumplings, which symbolize wealth; glutinous rice balls which symbolize family togetherness and reunion; and long noodles that symbolize long life)."



Illustration 79 - "[Osmanthus cake](#) is a traditional sweet-scented Chinese pastry made with glutinous rice flour, honey sweet-scented osmanthus and rock sugar"
(source: [Wikipedia](#), different kind of rice cakes listed)

"Chinese New Year also welcomes a new animal from the [Chinese zodiac, a repeating 12-year cycle](#) where each year is represented by an animal and its attributes. This year, 2022, ushers in the Year of the Tiger.

To wish someone a happy and prosperous new year in Mandarin Chinese, just say, "gong xi fa cai, xin nian kuai le." This translates to, "Wish you happiness and prosperity! Happy New Year!"

(It was too interesting to shorten it, and if you want to know about the traditions in other countries just click the embedded link in "from Yahoo" at the beginning)

December 2005 - January 2008

In December, the opposition party KMT triumphs in the municipal elections. The result is interpreted as a mid-term vote of no confidence in President Chen Shui-bian.



Illustration 80 - Excerpt from the Wikipedia Article on said election
The People's First Party received 0.91 % and
the New Party 0.16 % of the votes

Februar 2006, the decision of Taiwan to scrap the National Unification Council (set up on October 7, 1990 to deal with the reunification of China mainland; dissolved on February 27, 2006) was commented in China as a decision that could bring "disaster".

In June, the president of Taiwan ceded some of his powers to the prime minister over corruption allegations against a member of his family.

In October, president Chen survives the second attempt to force a referendum on his rule. It was the second within four months. His supporters and opponents take it on the streets.

In December, an earthquake off Taiwan cuts undersea cables which led to limited telecommunications across the region. China highlights Taiwan as a security threat in plans to upgrade their military.

January 2007, Taiwan's defense school history books which refer to China. Beijing accuses Taipei of introducing independence ideologies into the classroom.

In March, newspapers report that Taiwan's test-fired cruise missiles are capable of hitting Shanghai or Hongkong. The removal of a Chiang Kai-shek statue from Kaohsiung sparks protests.

In April, a dispute between Taiwan and China erupts over route of Olympic torch relay ahead of 2008 Beijing games.

In August, Taiwan attempts to join the United Nations for the first time under the name Taiwan instead of the official title Republic of China. The application is rejected.

January 2008, the opposition party KMT wins in a landslide in the parliamentary elections (KMT gets 58.45% of the votes, the DPP 41.55%). As a consequence, Mr Chen steps down from post of DPP chairman.

March 2008 - December 2008

In the presidential elections, Ma Ying-jeou (*13 July, 1950) is elected president.

In June, the first formal talks with China are held since dialogue was suspended in 1999.

July 2008, the president apologizes for the white terror in the 1950s and 1960s that saw tens of thousands of political dissidents getting killed or imprisonment. This violence took place after the Kuomintang party fled to the island and imposed martial law in 1949.

In November of the same year, Chen Yunlin (* December, 1941), China's top negotiator on Taiwan, visits Taiwan for talks in Taipei on improving relations. He is the highest ranking Chinese official to visit Taiwan in more than half a century, his visit was met with protests by pro-independence protesters. In the same month, Chen Shui-bian is arrested for money laundering, bribery and embezzlement of government funds. He claims it is politically motivated.

In December, China gift of two pandas to Taiwan is seen as a further improvement of relations.

March 2009 - January 2010

Trial of former President Chen Shui-bian on charges including taking bribes, money laundering and extortion.

In April, China drops the longstanding objections to Taiwan's participation in the World Health Organization. In turn, Taiwan says it will lift ban on investments from China.

In May, talks on a trade pact between Chinese President Hu Jintao and the chairman of

the governing Kuomintang (KMT) party, Wu Po-hsiung are agreed upon.

In July, for the first time in more than 60 years, Taiwan and China exchange direct messages in a sign of warming ties. President Ma Ying-jeou is elected head of the ruling party.

One month later, in August, typhoon Morakot hits Taiwan which kills 789 in total.

It formed on August 2, 2009 and dissipated on August 13, 2009.

The mismanagement of the crisis caused by the natural disaster was compared to George W. Bush's handling of hurricane Katarina: slow reaction of the central government, disregard for the local population and an arrogant towards native Taiwanese (in the US towards the black population respectively). His approval decreased as a consequence.

(source, typhoone handling: [Bildungszentrale für politische Bildung](#)).

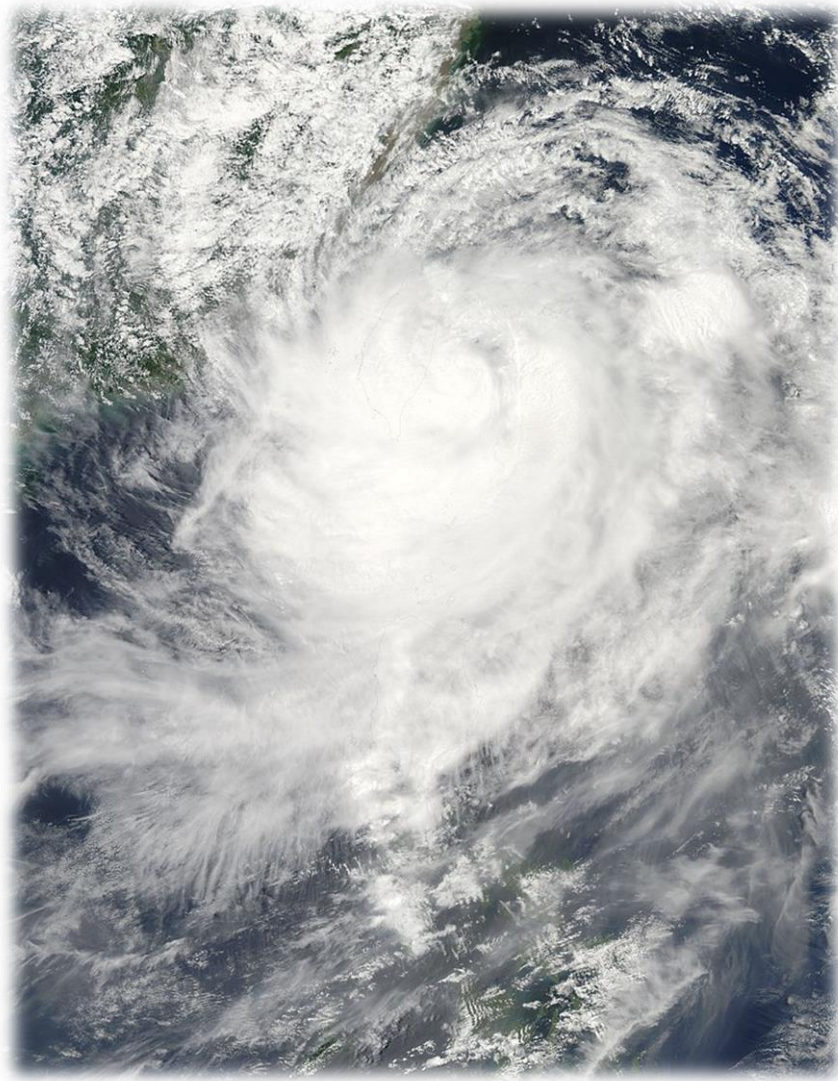


Illustration 81 - Category 1 typhoon*
(image: Wikipedia)

January 2010, after the US approved the sale of defence missiles to Taiwan under a proposed \$6.7bn arms package, China suspends military contacts with the US in response and sanctions US companies involved in the arms package.

*There are five categories for typhoons, once maximum sustained winds reach 74 mph (119 km/h), the cyclone is called:

- A **hurricane** in the North Atlantic Ocean, the Northeast Pacific Ocean east of the dateline, and the South Pacific Ocean east of 160°E, (The word hurricane comes from the Carib Indians of the West Indies, who called this storm a *huracan*. Supposedly, the ancient Tainos tribe of Central America called their god of evil "Huracan". Spanish colonists modified the word to hurricane.),
- A **typhoon** in the Northwest Pacific Ocean west of the dateline (**super typhoon** if the maximum sustained winds are at least 150 mph / 241 km/h),
- A **severe tropical cyclone** in the Southwest Pacific Ocean west of 160°E or Southeast Indian Ocean east of 90°E,
- A **severe cyclonic storm** in the North Indian Ocean, and
- A **tropical cyclone** in the Southwest Indian Ocean.

On the website of the National Weather Service you can read up on them:

https://www.weather.gov/jetstream/tc_classification

June 2010 - October 2013

Taiwan and China sign a free trade pact which is seen as the most significant agreement in 60 years of separation.

February 2011, detention of a senior army officer on suspicion of spying for China.

January 2012, re-election of President Ma Ying-jeou.

In August, an investment protection deal is signed by China and Taiwan that sets up formal channels to settle disputes. In the agreement are details such as the rights of Taiwanese investors if detained by Chinese authorities and vice versa. China is the biggest trading partner of Taiwan with a bilateral trade worth of \$110bn (£70bn) a year.

Cross-Strait Bilateral Investment Protection and Promotion Agreement

Article 3 of the agreement contains the section. The agreement was signed on August 9. (source: <https://edit.wti.org/document/show/7bf088ee-31e7-4a7e-b6c7-2d9389a9a2ad>)

1. Each Party shall ensure fair and equitable treatment to investors of the other Party and their investments, and shall provide full protection and security:

(1) "Fair and equitable treatment" means that the measures adopted by a Party shall be in accordance with the principle of due process and shall not deny justice and fair trial to investors of the other Party, and that obviously discriminatory or arbitrary measures may not be implemented.

(2) "Full protection and security" means that a Party shall adopt reasonable and necessary measures to protect the safety of investors of the other Party and their investments.

A Party's breach of other provisions in this Agreement does not constitute a breach of this paragraph.

2. The Parties shall reinforce the protection of personal freedom and safety of investors and related personnel, fulfill the notification obligations related to personal freedom within the prescribed time limit under their respective laws and regulations, and strive to perfect the existing notification mechanism.

3. Treatment accorded by a Party to investors of the other Party with respect to the operation, management, maintenance, enjoyment, use, sale, or other disposition of their investments shall not be less favorable than that accorded by such Party, in like circumstances, to its own investors and their investments.

4. Treatment accorded by a Party to investors of the other Party with respect to the establishment, expansion, operation, management, maintenance, possession, use, sale, or other disposition of their investments shall not be less favorable than that accorded by such Party, in like circumstances, to investors of any third party and their investments.

5. Paragraphs 3 and 4 of this Article do not apply to a Party's existing non-conforming measures and amendments thereto, while the Party shall gradually reduce or eliminate such non-conforming measures and provided that any amendment or change to such non-conforming measures shall not increase the restrictions on investors of the other Party and their investments.

6. Investors of the other Party may not claim to initiate dispute resolution proceedings other than those provided in this Agreement based on paragraph 4 of this Article.

January 2013, territorial dispute with Japan: *"Japan turns back a small Taiwanese boat from East China Sea islands claimed by China and Taiwan. The row has left ties between Tokyo and Beijing severely strained. Four Taiwanese coastguard vessels escorted the boat. The islands are called Senkaku in Japan, Diaoyutai in Taiwan and Diaoyu in China."*

In April, Taiwan holds its first live fire drills in five years after the president warns about China's rising military investment.

In May, a Filipino coastguard kills a Taiwanese fisherman in disputed waters which leads to a major diplomatic conflict between Taiwan and the Philippines.

In June, the cross-strait services trade agreement is signed by Taiwan and China.

In October, said agreement is stalled in Taiwan's parliament by opposition MPs over the concern that it will hurt industry and small businesses.

February 2014 - December 2017

The first government-to-government talks are held between Taiwan and China since the Communist Party of China came to power in 1949. Taiwan sends its government minister in charge of the island's China policy and China his mainland counterpart from the eastern city of Nanjing.

In March, the cross-Strait services trade agreement leads to opposition protesters occupying the parliament. The parliament hasn't ratified the agreement yet.

In April, the head of EPA (USA) visits Taiwan. It is the first visit of a cabinet-level official in 14 years.

In June, amidst a controversy over a proposed trade pact, the most senior Chinese official overseeing ties with Taiwan visits the island.

In October, Taiwan implements a ban on senior government officials to attend higher studies in China, citing national security reasons.

In December, the Kuomintang party experiences a crushing defeat in [local elections](#).

President Ma Ying-jeou resigns as chairman of the party. The polls were seen as a referendum on Ma's pro-China policies (DPP: 47.97%; KMT: 40.81%).

January 2015, after serving six years of a 20-years prison sentence, the former president Chen Shui-bian is released from prison on medical parole. Eric Chu, mayor of New Taipei, is elected as chairman of the ruling KMT.

In February, 118 people are charged by prosecutors with offences related to occupation of the island's parliament and government offices in 2014 (dubbed "Sunflower movement").

In March, after a severe backlash from Taiwan's authorities, China postpones the launch of four new flight routes near Taiwan.

In October, the KMT drops Hung Hsiu-chu as its presidential candidate after a series of poor opinion poll ratings. She was the first female candidate for the post.

In November, historic talks are held between Taiwan's President Ma Ying-jeou and China's President Xi Jinping in Singapore. It is the first meeting of this kind since the end of the Chinese Civil War in 1949 and the subsequent split of the nation.

January 2016, Tsai Ing-wen - a pro-independence Democratic Progressive Party candidate - emerges victorious in the presidential elections. She takes office in May.

June 2017, Panama switches diplomatic recognition from Taiwan to China which is seen by the latter as a victory. [Sao Tome and Principe](#) did the same in December 2016, leaving Taiwan to enjoy full diplomatic relations with only 20 other countries.

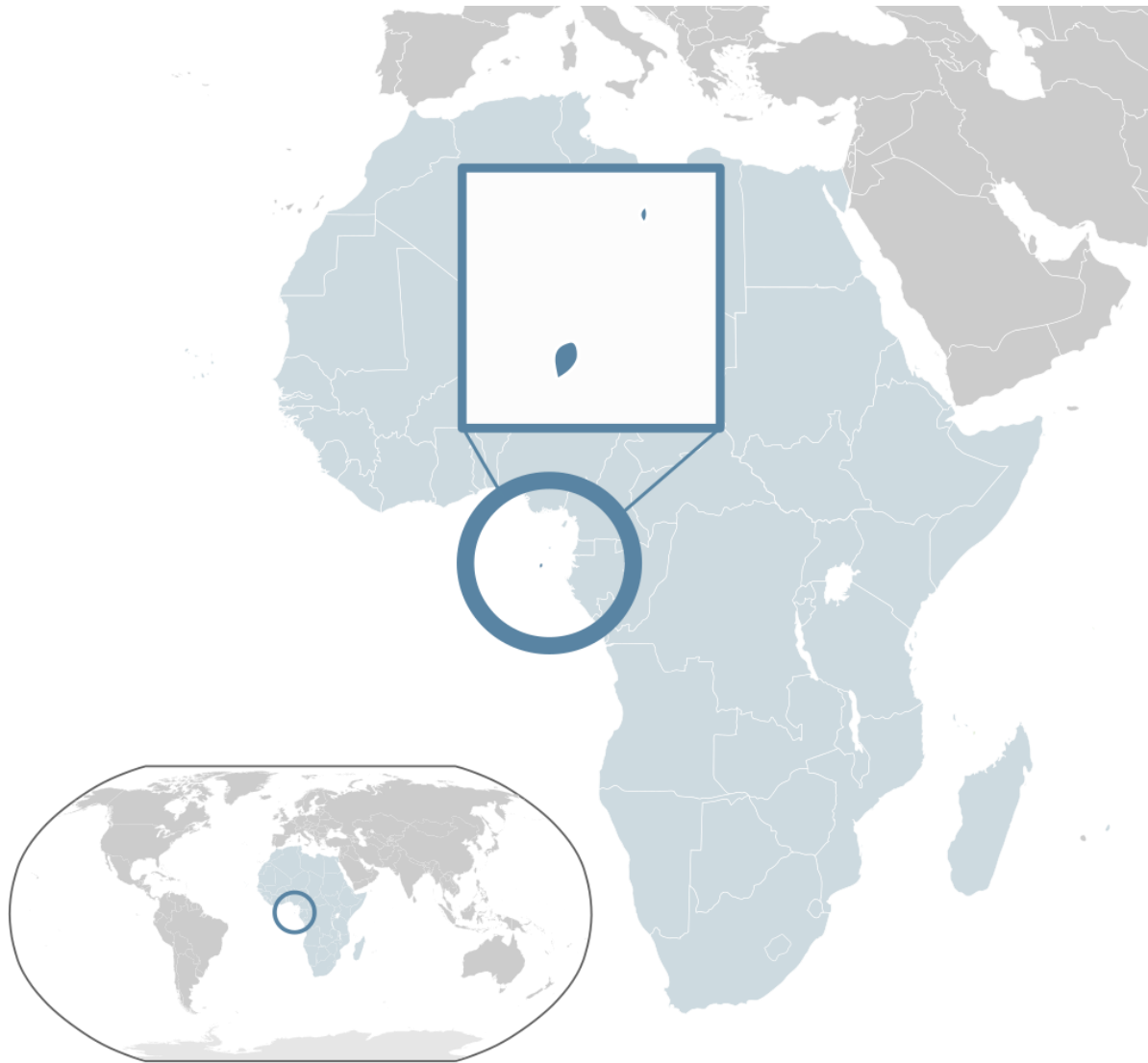


Illustration 82 - Sao Tome and Principe is an island country of Central Africa
(Image: Wikipedia)

In December 2017, the parliament votes to remove symbols of the island's authoritarian past - including references to the former leader, Chiang Kai-shek

11 January 2020, Tsai Ing-wen secured her re-election with just over 57 %.

An excerpt from a [BBC article](#): *"Ms Tsai opposes closer ties with China, with Mr Han suggesting they would bring economic benefits. In her victory speech, Ms Tsai told China to abandon its threat to take back the island by force. Ms Tsai told a news conference: "Taiwan is showing the world how much we cherish our free democratic way of life and how much we cherish our nation."*



Illustration 83 - Tsai Ing-wen (image from BBC, which in turn got it from Getty Images)

August 2022, Nancy Pelosi, speaker of the house of representatives in the USA, visits Taiwan. It is the first of its kind in 25 years, and she intended to make it *"unequivocally clear"* that the United States would *"not abandon"* the democratically governed island.

Tsai Ing-wen thanked Pelosi for visiting and *"praised her commitment to democracy and bestowed on her Taiwan's highest civilian honor"* ([CNN Business](#)).

Beijing responded with a warning that Pelosi's trip would have a *"severe impact on the political foundation of China-US relations"* and began with series of military exercises on Tuesday. 708,000 people tracked it on Flightradar24 when her aircraft landed in Taipei, 2.9 million people tracked at least a portion of the flight.

The Taiwanese-Chinese Conflict

As the history of Taiwan has shown, mainland China sees Taiwan as part of itself. Taiwan, as seen by China, is a renegade region which eventually reunites with the mainland.

Taiwan is in a precarious situation: on the one hand, China is its [main trading partner](#)* (especially after the assimilation of Hong Kong) and the re-election of Tsai Ing-wen signals that there's a strong sense of Taiwanese identity with commitment to democracy; on the other hand, China is also the greatest threat to the current status quo.

In my opinion should democracies around the world declare solidarity with Taiwan, in ac-

cordance with the Taiwanese government and people of course (e.g. subtle with soft power like cultural exchanges).

Note

To some it may look like a footnote, but Sun Yat-sen (12 November 1866 - 12 March 1925) is a very fascinating historic figure I want to mention here.



Illustration 84 - Sun Yat-sen, London 1896
(image: Wikipedia)

He lived in exile until he returned from Europe to Japan where he was the leader of the "Revolutionary Alliance" which had connections to countless groups within China, especially anti-Manchurian associations which have grown in numbers since 1902.

Sun Yat-sen brought a program with him called the three Three Principles of the People which he conceptualized during his stay in Europe and developed into reform proposals in the following years. The principles were as followed: the principle of nationalism (minzu), the principle of civil rights (minquan) and the principle of public welfare (minsheng).

These principles can also be outlined as anti-imperialistic nationalism, democracy and socialism. He also sought to implement agricultural reforms under the influence of the american theorist Henry George (1839-1897) which included the partial nationalization of land ownership with compensation.

The founding manifesto of the Revolutionary Alliance mentions at the very beginning the establishment of a republic as one of the four goals of the revolutionaries. The other aims were: the expulsion of the barbarians (i.e. the Manchu dynasty), the founding of a Chinese national state under the slogan >>China is the China of the Chinese<< and finally the redistribution of land ownership. Furthermore, they sought to *"establish a system of governance where all people are equal and enjoy the same rights. The president is elected by the people, as well as the parliament which consists of representatives. A constitution is to be issued and everyone has to obey by it. Whoever dares to declare themselves a monarch will face the resistance of the entire country"* (p. 41 f). The demand for a republican constitution was in many ways compatible with the traditional understanding of a 'good government'.

The information above is from a book I've read not so long ago, it is a German one. If you are still interested, here are the details:

Title: Das Neue China - Vom Untergang des Kaiserreichs bis zur Gegenwart

Author: Helwig Schmidt-Glintzer

Pages: 128

ISBN: 978-3-406-74355-9

Edition: the 8th updated edition, 2021

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[D=3722](#)

Nationalist Party

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Press Communiqué

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Taiwan - Auf dem Weg zur pluralistischen und multikulturellen Demokratie

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Taiwan election: Tsai Ing-wen wins second presidential term

<https://www.bbc.com/news/world-asia-51077553>

Pelosi's flight to Taiwan was the most-tracked of all time, Flightradar24 says

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Taiwan's Top Trading Partners

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(Released: 7th August 2022, 01:41 Uhr/01:41 am)

Science News #015

Today's Science News will focus on SARS-CoV-2 and climate change; we'll learn about a new development regarding the acceptance of Covid-19 vaccines, a new development on the origin of the virus and transmission as well as the impact climate change has on pathogens. Lastly, a note on this important topic as well.



Illustration 85 - Image by geralt (Pixabay)

Article 1: Study shows increase in COVID-19 vaccine acceptance around the world

SD-Date: 6th July, 2022

Et-Date: 9th July, 2022

ScienceDaily-Summary: *"COVID-19 vaccine acceptance increased 3.7% between 2020 and 2021, according to a new study. In a June 2021 survey of over 23,000 individuals across 23 countries, the researchers found that more than three-quarters (75.2%) of respondents reported vaccine acceptance, up from 71.5% one year earlier."*

Method of Research

The study was conducted by researchers from the CUNY Graduate School of Public Health and Health Policy (CUNY SPH), the Barcelona Institute for Global Health (ISGlobal), the Dalhousie University and the University of Calgary.

Over 23,000 individuals across 23 countries participated in the survey from June 2021. The participants came from the following countries: United States, United Kingdom, Turkey,

Sweden, Spain, Singapore, South Korea, South Africa, Russia, Poland, Peru, Nigeria, Mexico, Kenya, Italy, India, Ghana, Germany, France, Ecuador, China, Canada and Brazil.

Findings

- No significant correlation between vaccine hesitancy and a country's Covid-19 case burden and mortality
- Hesitancy most frequently in:
 1. Russia (48.4 %)
 2. Nigeria (43.0 %)
 3. Poland (40.7 %)
- Hesitancy least frequently in:
 1. China (2.4 %)
 2. United Kingdom (18.8 %)
 3. Canada (20.8 %)
- General Acceptance:
75.2 % (increase by 3.7 % compared to one year earlier)
- Support for vaccination targeting international travellers the strongest, the weakest for requirements for schoolchildren
- The most consistent correlates of hesitancy were vaccine safety and efficacy, and mistrust in the science and vaccine development

Additionally

I think it is important to add this quote from the article, given the circumstances:

"Although some countries are currently disengaging from evidence-based COVID-19 control measures, the disease has by no means been controlled or ended as a public health threat. The authors note that for ongoing COVID-19 vaccination campaigns to succeed in improving coverage going forward, substantial challenges remain. These include targeting those reporting lower vaccine confidence with evidence-based information campaigns and greatly expanding vaccine access in low- and middle-income countries."

Source

<https://www.sciencedaily.com/releases/2022/07/220706165358.htm>

Article 2: Studies link COVID-19 to wildlife sales at Chinese market, find alternative scenarios extremely unlikely

SD-Date: 26th July, 2022

Et-Date: 12th August, 2022

ScienceDaily-Summary: *"Analyses based on locations and viral sequencing of early COVID-19 cases indicate the pandemic started in Huanan market in Wuhan, China, with live animals being sold at the market as the likely source. Genomic studies revealed that the SARS-Cov-2 virus jumped into humans on at two separate occasions."*

Note: This article consists of two studies: one about the origin of the virus, the other about the genomic studies. Hence you will see Method of Research and Findings twice.

I. Method of Research

Worobey and Kristian Andersen of the Scripps Research Institute in San Diego, California, conducted the research on the origin of the virus. They examined the geographic pattern of Covid-19 cases in the first month of the outbreak, December 2019.

Almost all locations of the 174 Covid-19 cases identified by the World Health Organization had been determined, 155 of them were located in Wuhan*.



Illustration 86 Wuhan Skyline (image: [UNESCO - Creative Cities Network](#))

In order to rule out any bias in the analysis, the researchers began removing cases from their analyses, going farther in distance from the market as they went, and ran the stats again. Moreover, the data comes from the hospital where the patients were recorded.

*Wuhan is a large city with 10.76 million inhabitants and the capital of Hubei province. According to UNESCO, it is famous for its 3,500 years of cultural history ([earliest recorded settlement](#) during the Western Xi Zhou period (1046-771 BCE) to the southeast of Wuchang; it became the capital of the Wu Dynasty during the period of The Three Kingdoms (220-280 BC)) and that *"the city is the cradle of urban civilisation in the Yangtze River basin and the oriental tea harbour of the ancient Tea Road"*. The link is embedded in the image description.

I. Findings

- The cases were clustered tightly around the Huanan market
- Later cases were widely dispersed across Wuhan
- In January and February 2020, the pattern was the opposite: while in 2019 it all was very close to the Huanan market, the later cases coincided with areas of the highest population density in Wuhan.
-> confirms that the virus spread from the market and didn't circulate cryptically
- The findings were the same for the analysis where they ruled out bias
- Samples were taken from market surfaces like floors and animals cages: positive tested ones were significantly associated with stalls selling live wildlife
- It was confirmed that animals susceptible to SARS-CoV-2 were sold on the market

"Upstream events are still obscure, but our analyses of available evidence clearly suggest that the pandemic arose from initial human infections from animals for sale at the Huanan Seafood Wholesale Market in late November 2019," said Kristian Andersen.

II. Method of Research

The second study was co-led by Jonathan Pekar and Joel Wertheim at the University of California, San Diego and Marc Suchard of the University of California Los Angeles, as well as Andersen and Worobey.

By combining epidemic modeling with analyses of the virus's early evolution based on the earliest sampled genomes, the researchers were able to determine how often the virus may have jumped across species. They used a technique called *molecular clock** analysis to establish a framework for the evolution of the SARS-CoV-2 virus lineages.

***Molecular clocks** (source: [Understanding Evolution](#), UC Museum of Paleontology)

"When a stretch of DNA does indeed behave like a molecular clock, it becomes a powerful tool for estimating the dates of lineage-splitting events. For example, imagine that a length of DNA found in two species differs by four bases (as shown below) and we know that this entire length of DNA changes at a rate of approximately one base per 25 million years.

That means that the two DNA versions differ by 100 million years of evolution and that their common ancestor lived 50 million years ago.

Since each lineage experienced its own evolution, the two species must have descended from a common ancestor that lived at least 50 million years ago."

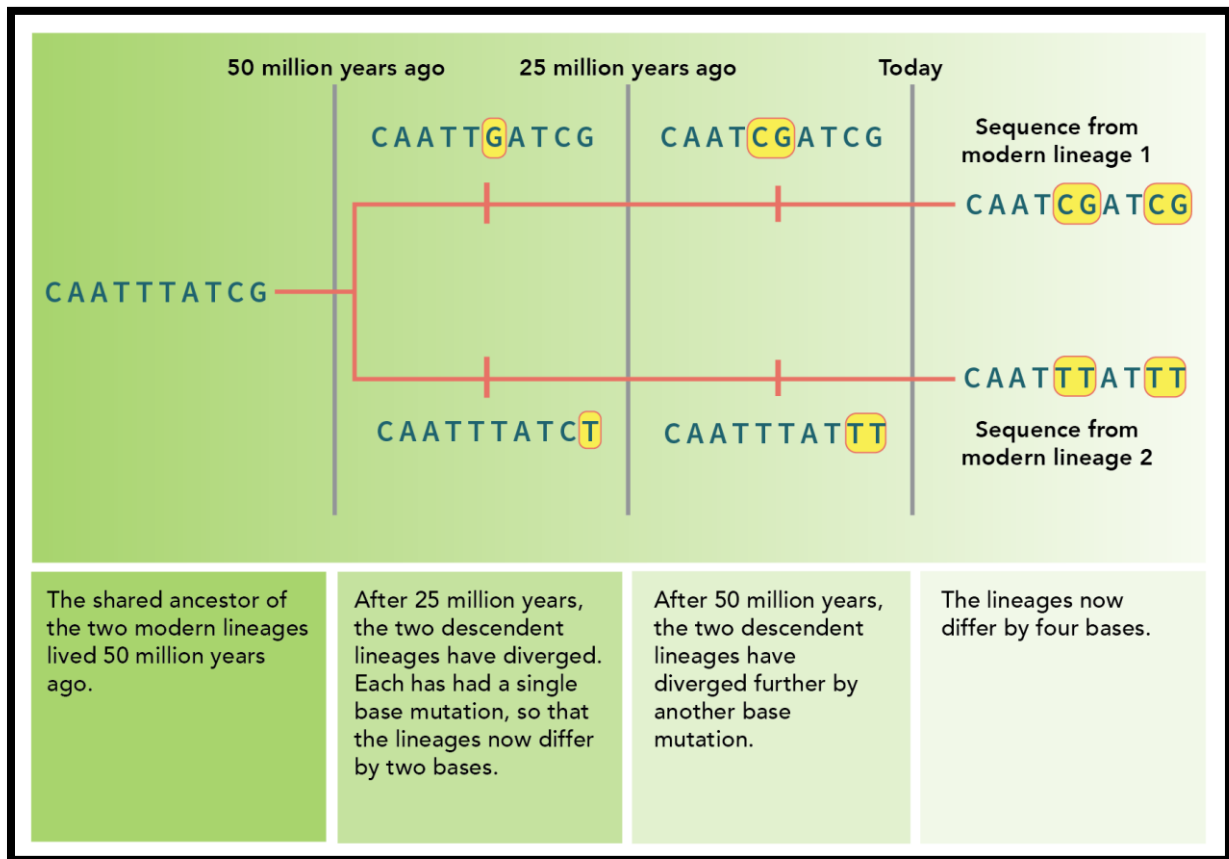


Illustration 87 - Image from Understanding Evolution

Since viruses such as SARS-CoV-2 are very tiny, adaptation through mutations happen more quickly when they reproduce. If you are interested in how viruses evolve, I recommend reading this article: <https://viruses.gslc.utah.edu/how-viruses-evolve>

An interesting excerpt from said article about recombination: *"There is evidence of recombination in SARS-CoV-2, the novel coronavirus that caused the COVID-19 pandemic. SARS-CoV-2 is most similar to a virus from bats—but the part of the virus that binds to a surface receptor on human cells is most similar to a virus from pangolins. This suggests that two different viruses recombined to make a new virus with genetic information from both. That reshuffling event may have made it possible for the virus to then make the jump to people. There's evidence that this type of gene sharing has happened before, so we should expect it to happen again. A similar receptor-binding protein is found in SARS CoV, the coronavirus that caused the SARS outbreak of 2003."* (Gene Shuffling: Making New Combinations)

II. Findings

- The pandemic likely arose from at least two separate infections of humans from animals at the Huanan market; one in November 2019 and the other perhaps in December 2019. To quote from the abstract of *The molecular epidemiology of multiple zoonotic origins of SARS-CoV-2*: "*The first zoonotic transmission likely involved lineage B viruses around 18 November 2019 (23 October–8 December), while the separate introduction of lineage A likely occurred within weeks of this event.*"
- Initially, there were likely two distinct lineages of SARS-CoV-2 called A and B
- The analysis also suggests that many other animal-to-human transmissions of the virus at the market that failed to manifest in recorded COVID-19 cases
- A singular transaction would be inconsistent with the molecular clock data, as it was suggested in earlier studies. Otherwise the evolution of lineage A would have been in slow motion compared to the lineage B, which "*just doesn't make biological sense*" according to Worobey

"Moving forward, the researchers say scientists and public officials should seek better understanding of the wildlife trade in China and elsewhere and promote more comprehensive testing of live animals sold in markets to lower the risk of future pandemics." (ScienceDaily)

Source

<https://www.sciencedaily.com/releases/2022/07/220726132600.htm>

Article 3: Impact of climate change on human pathogenic diseases subject of new study by UH researchers

SD-Date: 8th August, 2022

Et-Date: 13th August, 2022

ScienceDaily-Summary: *"A comprehensive assessment of scientific literature has uncovered empirical evidence that more than 58% of human diseases caused by pathogens, such as dengue, hepatitis, pneumonia, malaria, Zika and more, have been--at some point--aggravated by climatic hazards."*

Method of Research

A team of researchers from the University of Hawaii at Manoa combined two authoritative lists of all known infections and pathogenic diseases that have affected humanity in recorded history. They reviewed more than 70,000 scientific papers for empirical examples to find out how each disease is affected by each possible combination of a climatic hazard.

These 10 climate hazards were selected due to their sensitivity to greenhouse gas emissions and are as follows: warming, drought, heatwaves, wildfires, extreme precipitation, floods, storms, sea level rise, ocean biogeochemical change, and land cover change.

Findings

- All climatic hazards were found to influence diseases triggered by viruses, bacteria, animals, fungi, protozoans, plants and chromists*
- 58 % (218 out of 375) of the known human pathogenic diseases had been found to be affected by at least one climatic hazard via 1,006 unique pathways
- While a great majority was aggravated by climatic hazards, 22 % (63 out of 286 diseases) were diminished
- Most diseases that were diminished by one hazard were aggravated by another, sometimes even the same hazard

Other key findings of the study:

- **Climatic hazards are bringing pathogens closer to people.**
Hazards such as warming and precipitation change the spatial and temporal expansion of vectors and pathogens (meaning the environmental changes result in the expansion of vectors like mosquitoes, ticks, fleas and birds). Said animals were implicated by outbreaks in outbreaks by viruses including dengue, chikungunya, plague, Lyme disease, West Nile virus, Zika, trypanosomiasis, echinococcosis and malaria to name a few.
- **Climatic hazards are bringing people closer to pathogens.**
The forced displacement and migration of people due to climatic hazards results in the exposure to pathogens as well. Heatwaves have been associated with several wa-

terborne diseases like *Vibrio* (a kind of bacteria)-associated infections, primary amoebic meningoencephalitis and gastroenteritis.

Storms, floods and sea level rise, on the other hand, favours pathogens like leptospirosis, cryptosporidiosis, Lassa fever, giardiasis, gastroenteritis, Legionnaires' diseases and cholera.

- **Climatic hazards have enhanced specific aspects of pathogens.**

Stagnant water - for example - caused by heavy rainfall, storms and floods improved climate suitability for pathogens. Thus there's an increasing breeding ground for Mosquitoes and the various pathogens they transmit.

Heatwaves were suggested as natural selective pressure toward "heat resistant" viruses, as a result of this adaptation the viruses could better cope with the human body's main defense - fever.

- **Climatic hazards have also diminished human capacity to cope with pathogens.**

By altering body condition; the additional stress from exposure to hazardous conditions; when people are forced into unsafe conditions; and damaging infrastructure forcing exposure to pathogens and/or reducing access to medical care.

Drought is given as an example for being conducive to poor sanitation responsible for cases of trachoma, chlamydia, cholera, conjunctivitis, *Cryptosporidium*, diarrheal diseases, dysentery, *Escherichia coli*, *Giardia*, *Salmonella*, scabies and typhoid fever (see East Africa**, where there's currently a major crisis going on).

*Chromista means "coloured" and most of them are photosynthetic, although they are not at all closely related to plants or even algae. *"Unlike plants, the Chromista have **chlorophyll c**, and do not store their energy in the form of starch. Also, photosynthetic chromists often carry various [pigments](#) in addition to chlorophyll, which are not found in plants. It is these pigments which give them their characteristic brown or golden color."*

([University of California](#))

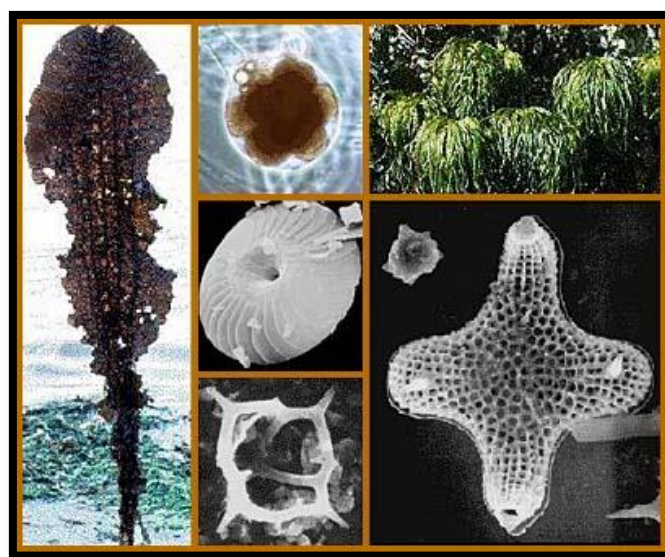


Illustration 88 - Images of kelp and Sargassum courtesy Wisconsin; coccolith image courtesy Dr. William Ruddiman and the US National Geophysical Data Center; picture of *Odontella* taken by Karen Wetmore.

****** *"Oxfam estimates that 13 million people across Ethiopia, Kenya, and Somalia have been displaced in search of water and pasture, just in the first quarter of 2022. Millions of others had to flee their farmlands and homes due to conflicts, especially in northern Ethiopia – where 9.4 million people now need urgent humanitarian aid. East Africa has also suffered from the worst plague of locusts in 70 years. Kenya has suffered a 70 percent drop in crop production and has declared a national disaster with 3.1 million people facing acute hunger. As many as 28 million across the region could face severe hunger if rains do not fall."* (source: [Oxfam](#), April 8 2022)

Arte, the French-German public broadcaster, also made a report on it. You can find it on their official Youtube channel.

Link to the German report (13 minutes, 14 seconds):

https://www.youtube.com/watch?v=a_fxbg5z2V8

Source

<https://www.sciencedaily.com/releases/2022/08/220808162138.htm>

Note

Lastly, I'd like to recommend the scientific article "*Biodiversity loss, emerging pathogens and human health risks*" (National Library of Medicine) to anyone who is interested to learn more about it. Pandemics are not like earthquakes or tsunamis, we can implement policies, measures and work on strategies to minimize the danger.

Here a longer excerpt from the article (it was published online on August 13, 2020).

In a global assessment of biodiversity, the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES, (Bridgewater et al. [2019](#)), has called for a transformative change in the human society. We need to realize that habitat destruction, over-exploitation and transportation of species, industrial farming, and the ever-increasing volume of worldwide travel (before the crisis, one plane was taking off every second) all destabilize our environment and favour the spread of pathogens. All these factors increase the probability of disease severity both in wildlife as well as in the human population. We need to rethink our relationship with nature and with the world's poorest, most neglected populations to minimize future catastrophic epidemics. Perhaps the most poignant current example lies in eastern Democratic Republic of Congo (DRC), an area of exceptional biodiversity and ecological value but also protracted human conflict, associated entrenched poverty, endemic infectious disease burden and perpetual threat of emerging infections. The misfortunes of people living in the eastern DRC were largely ignored by the rest of the world until they suffered an Ebola outbreak that threatened all of us:

“With a population of 80 million, the DRC has more than 4 million displaced and is home to the world’s second largest food crisis with 13 million people food insecure. Since January 2019, there have been outbreaks of cholera (15,331 cases, 287 deaths), measles (161,397 cases, 3,117 deaths) and malaria, the leading cause of death in the DRC, which kills more than 48,000 people every year” (WHO [2019](#)). After decades of chronic and brutal conflict, including dozens of attacks on Ebola response workers, a long-overdue cease-fire was finally brokered that enabled not only Ebola containment but also strengthening of local health systems generally. At the time of writing, the Ebola outbreak in the eastern DRC was still ongoing and remains a Public Health Emergency of International Concern, meaning a persisting pandemic threat to the world at large (WHO [2020](#)). We suggest there is valuable food for thought in the observation that the dangerous lingering tail of this latest Ebola outbreak, the second largest in history, featured alongside the need to protect healthcare workers from COVID-19 in two editorials on the same page of *The Lancet* (Anonymous [2020a, b](#)).

Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7423499/>

(Released: 13th August, 15:38 Uhr/3:38 pm)

Tabellarius #001: Ukraine, East Africa and Tunisia

In this new format, I will inform you about new developments in three countries (or regions, depending on the scale). Today, it is about the war in Ukraine, the crises in East Africa which continue to worsen and the demise of Tunisia's young democracy.



Illustration 89 - Image from Wikimedia

Ukraine

The war of aggression started by Russia continues, and while they failed in their initial objective to subdue Ukraine in a few days they now concentrate on East Ukraine.

"After Russian forces failed to overrun the country on three fronts, Moscow has claimed territorial gains in eastern Ukraine and created a land bridge between separatist regions in the Donbas and the Crimean peninsula it illegally annexed in 2014.

But Ukraine's military, supported by weapons and supplies from Western allies, including at least \$9.1 billion in security assistance from the United States, has claimed numerous victories and frustrated Moscow's wider ambitions." (source: [Reuters](#))

The current situation depicted beneath (the picture is part of the article of Reuters).



The [reliefweb](#) of the OCHA regularly updates on the casualties of the war, the most recent from August 15, 2022:

- a total of 5,514 killed (2,125 men, 1,451 women, 147 girls, and 170 boys, as well as 39 children and 1,582 adults whose sex is yet unknown)
- a total of 7,698 injured (1,560 men, 1,149 women, 164 girls, and 231 boys, as well as 200 children and
 - In Donetsk and Luhansk regions: 7,486 casualties (3,273 killed and 4,213 injured)
 - On Government-controlled territory: 6,064 casualties (2,984 killed and 3,080 injured)
 - On territory controlled by Russian armed forces and affiliated armed groups: 1,422 casualties (289 killed and 1,133 injured)
 - In other regions of Ukraine (the city of Kyiv, and Cherkasy, Chernihiv, Ivano-Frankivsk, Kharkiv, Kherson, Kirovohrad, Kyiv, Mykolaiv, Odesa, Sumy, Zaporizhzhia, Dnipropetrovsk, Poltava, Rivne, Ternopil, Vinnytsia, Volyn, and Zhytomyr regions), which were under Government control when casualties occurred: 5,726 casualties (2,241 killed and 3,485 injured)

According to the [UNHCR](#), 6,865,625 Ukrainian refugees have been recorded across Europe. In order to understand the magnitude of the crisis you need to know the population of Ukraine which, [as of 2020](#), was 43,177,471. In numbers, that makes 15.90 % of the Ukrainian population who fled from the war (or 1/6th of the population).

There's an inter-agency regional refugee program (consisting of the UN, NGO and other relevant partners to aid refugees in fleeing and the provision of critical protection services and humanitarian assistance), which includes Ukraine's neighbouring countries Hungary (28,640 refugees), Romania (87,066 refugees), Slovakia (90,412 refugees), Poland (1,338,339 refugees) and the Republic of Moldova (90,785).

Internally, over 6.6 million people remain displaced.

Russia regularly attacks Ukraine with missiles, as reported by Reuters:

"Exclusive data provided to Reuters by Ukrainian officials showed there had been at least 3,654 missile strikes across the country between the start of the invasion and July 21."

That means, on average, Ukraine was hit by 20 missiles a day.

Donetsk and Kharkiv suffered the most with 1,238 and 783 strikes respectively.

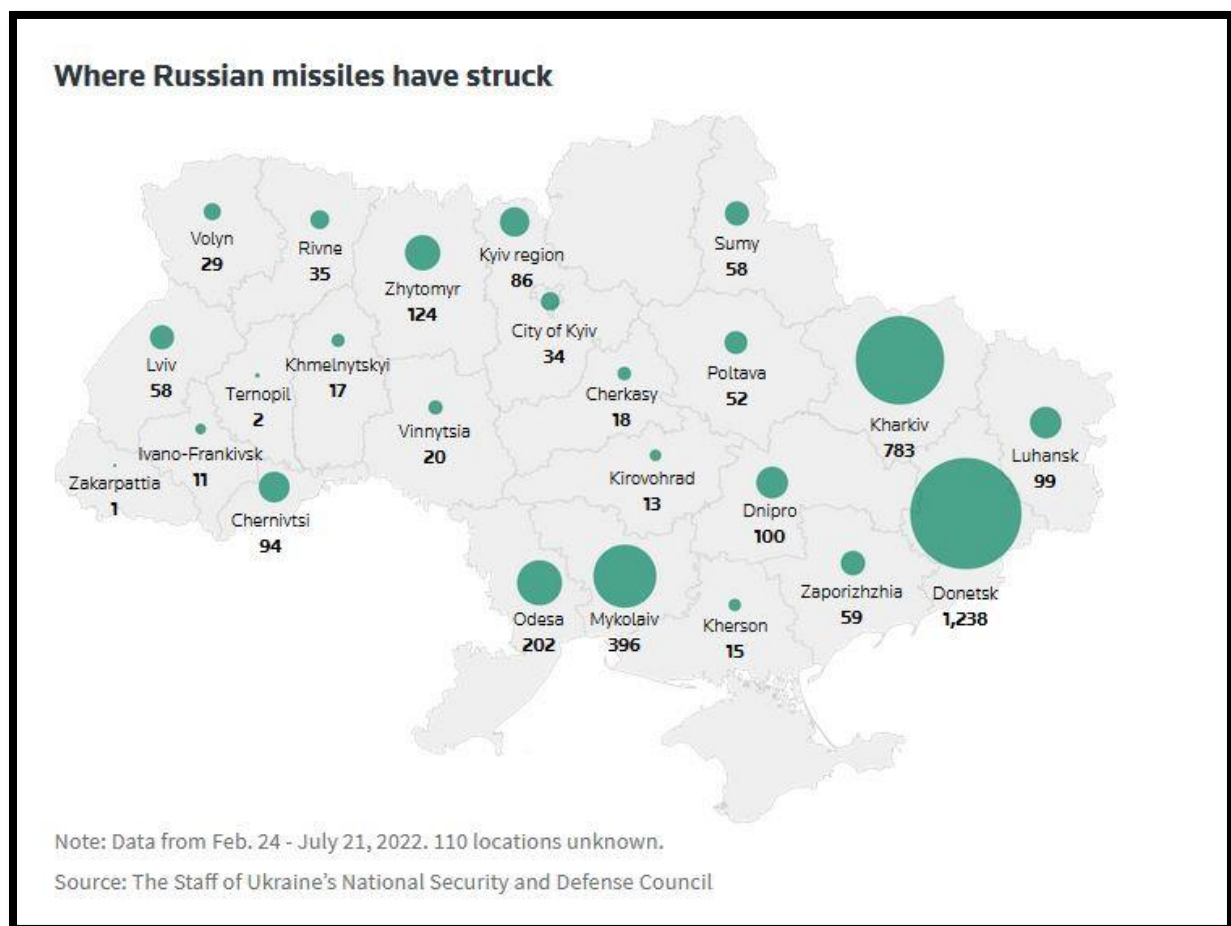


Illustration 90 - Graphic from Reuters

U.S. Intelligence estimates that some 15,000 Russian soldiers have been killed so far.

General Valeriy Zaluzhnyi provided the toll of Ukrainians soldiers which he says is 9,000.

Their estimate on how many Russian soldiers die vary from the U.S. Intelligence, though:

"[...] but the General Staff of Ukraine's armed forces has put the Russian military death toll at 45,400. Russia has not said how many of its soldiers have been killed." (source: [Reuters](#))

We will very likely know the real toll only after the end of the war, when all deaths have been confirmed and accounted for.

The impact the war has on civilian life can be seen in Mariupol, and how much devastation has been caused by Russian forces so far:



Comment: We always need to keep the psychological impact in mind as well:

Behind each killed Ukrainian are friends, family and colleagues from work or school. Each destroyed house and apartment building is the destruction of a home. They were torn away from their hometowns and -villages. Parents were robbed of their children; grandparents robbed of their grandchildren and children; children robbed of their parents, grandparents, siblings, and so on. For Ukraine as a whole, and with it its entire population, February 24 marks a turning point. And the outcome of the war will determine the future of Europe too.

Ukrainian Identity (source: [Ukraine World](https://ukraineworld.org/))

Volodymyr Yermolenko, Editor-in-Chief of Ukraine World, defines it as such:

"Ukrainian political culture is based upon anti-tyrannical, democratic and republican values. Most Russians tend to approve of their tsar; Ukrainians identify with opposition to him. Within politics they see a social contract. This harks back to the early modern era, when the Ukrainian warrior class known as Cossacks made agreements with their leaders which ensured recognition of their rights and freedoms. This mode of thinking runs deep and it is impossible to eradicate. The Cossack, a free warrior on the open steppe, is one of the symbols of Ukrainian identity.

Ukraine is also a political nation. It is not centred exclusively on any single ethnic, linguistic or religious identity. It is pluralistic. You can be a Ukrainian speaker, Russian speaker or a speaker of Crimean Tatar and be ready to defend Ukraine. You can be Ukrainian Orthodox, Greek-Catholic, Roman Catholic, Protestant, Muslim or Jewish and stand shoulder to shoulder for this country. Ukrainians have a Russian-speaking president who has Jewish origins.

When Russia's president Vladimir Putin calls such people "Nazis", he shows his own bigotry. Ukrainians are different from Russians culturally. The Ukrainian language is not the same (it has more words in common with Belarusian and Polish than with Russian), its culture is different, its music is different, its visual codes and national clothes are different. When Mr Putin says that Ukrainians and Russians are the same people he is not just wrong. He is going beyond what Soviet propagandists claimed. They accepted the difference between Ukrainians, Russians and Belarussians."

link: <https://ukraineworld.org/articles/ukraine-explained/ukraine-explained>

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Six months of the war in Ukraine

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Ukraine: Civilian casualties as of 24:00 14 August 2022 [EN/RU/UK]

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Ukraine Refugee Situation

<https://data.unhcr.org/en/situations/ukraine>

Ukraine Population (2020)

<https://www.worldometers.info/world-population/ukraine-population/>

Almost 9,000 Ukrainian military killed in war with Russia -armed forces chief

<https://www.reuters.com/world/europe/almost-9000-ukrainian-military-killed-war-with-russia-armed-forces-chief-2022-08-22/>

Ukraine War: Putin demands Mariupol surrender to end shelling (31st March, 2022)

<https://www.bbc.com/news/world-europe-60926470>

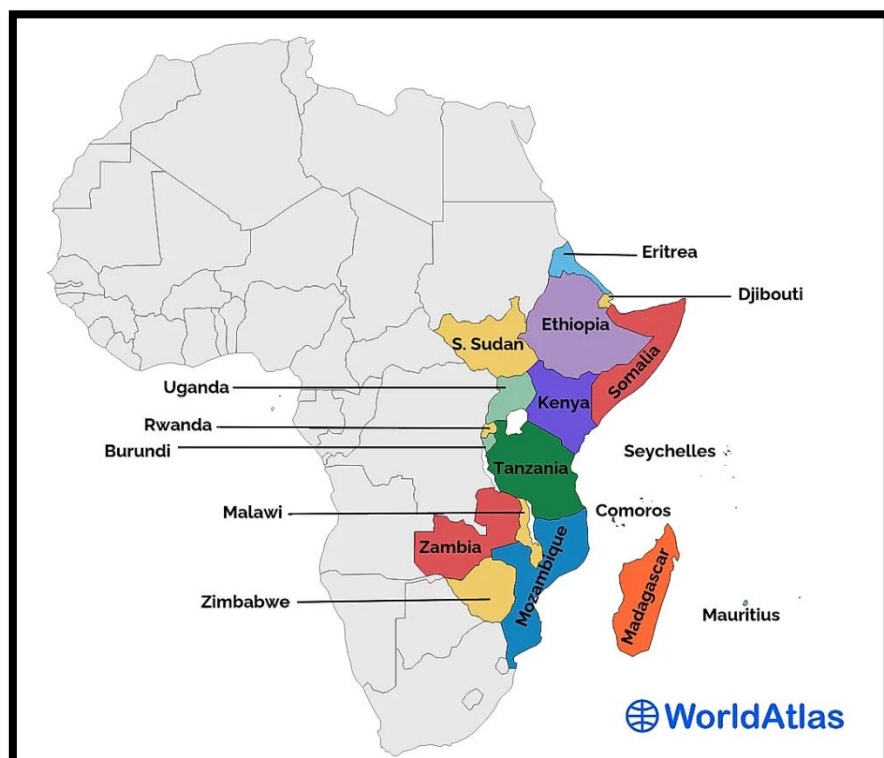
Ukrainian National Identity, Explained

<https://ukraineworld.org/articles/ukraine-explained/ukraine-explained>

East Africa

For clarification purposes, here's the region we are talking about. As I said in the very beginning: East Africa is a region, not one country (like the Central African Republic or South Africa). The region consists of 18 countries and 2 dependencies (source: [worldatlas](https://www.worldatlas.com)).

About 455 million people live there and Swahili is a widely used language.



In fact, Swahili is among the 10 widely spoken languages in the world with more than 200 million people who speak it. *"With its origin in East Africa, Swahili speakers spread over more than 14 countries: Tanzania, Kenya, Uganda, Rwanda, Burundi, the Democratic Republic of the Congo (DRC), South Sudan, Somalia, Mozambique, Malawi, Zambia, Comoros, and as far as Oman and Yemen in the Middle East. Southern African countries such as South Africa and Botswana have introduced it in schools, while Namibia and others are considering doing so."* (source: [UN](#)) Even in the US there are 90,000 Swahili speakers.

"Somewhere in Washington DC, students at Howard University are learning Swahili. The professor enters the class and greets the students:

Prof: Hamjambo? (How are you?)

Students: Hatujambo!(We are fine!)

Howard is one of the more than [100 universities](#), colleges and schools in the US that offer Swahili as a course.

Kate Mensah, an American-Ghanaian undergraduate Swahili student at Howard and a non-native Swahili speaker, says she chose to study it because of her love for languages and her goal of learning one language from each continent. She plans to travel to East Africa again to immerse herself in the culture." (UN)

The Crisis

Across the Horn of Africa (which includes parts or all of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and South Sudan) there's a child malnutrition emergency due to severe drought coupled with increasing food prices related to the war in Ukraine. Ethiopia, Kenya and Somalia have been hit especially hard. Reason for the severe drought are four consecutive failed rain seasons which decimated crops and led to abnormally high deaths in livestock (source: [UNICEF](#))

The Süddeutsche Zeitung reports: *"Ohne Milch und Fleisch ihrer Herden droht den Hirtenvölkern am Horn von Afrika die Katastrophe, viele können nur noch durch Hilfe von außen überleben. Auch die Existenz vieler Ackerbauern ist bedroht, weil ihre Ernten ausfallen werden."*

= *"Without the milk and meat of their droves, catastrophe threatens the pastoral people in the Horn of Africa. Many can only survive through external aid. Moreover, the very existence of crop farmers is in danger, because of crop failure."* ([Dürre am Horn von Afrika](#))

As I've already mentioned in the first paragraph: the four consecutive rain seasons which failed are one reason for the long drought. The other main drivers behind it are the changes in climate and the phenomenon known as *La Niña*. On top of that comes the war in Ukraine

which aggravates the whole situation: countries already affected by hunger, like Somalia, now have to face higher food prices. The same thing goes for war torn Tigre in Ethiopia where the situation has worsened, as well as the Sahel belt.

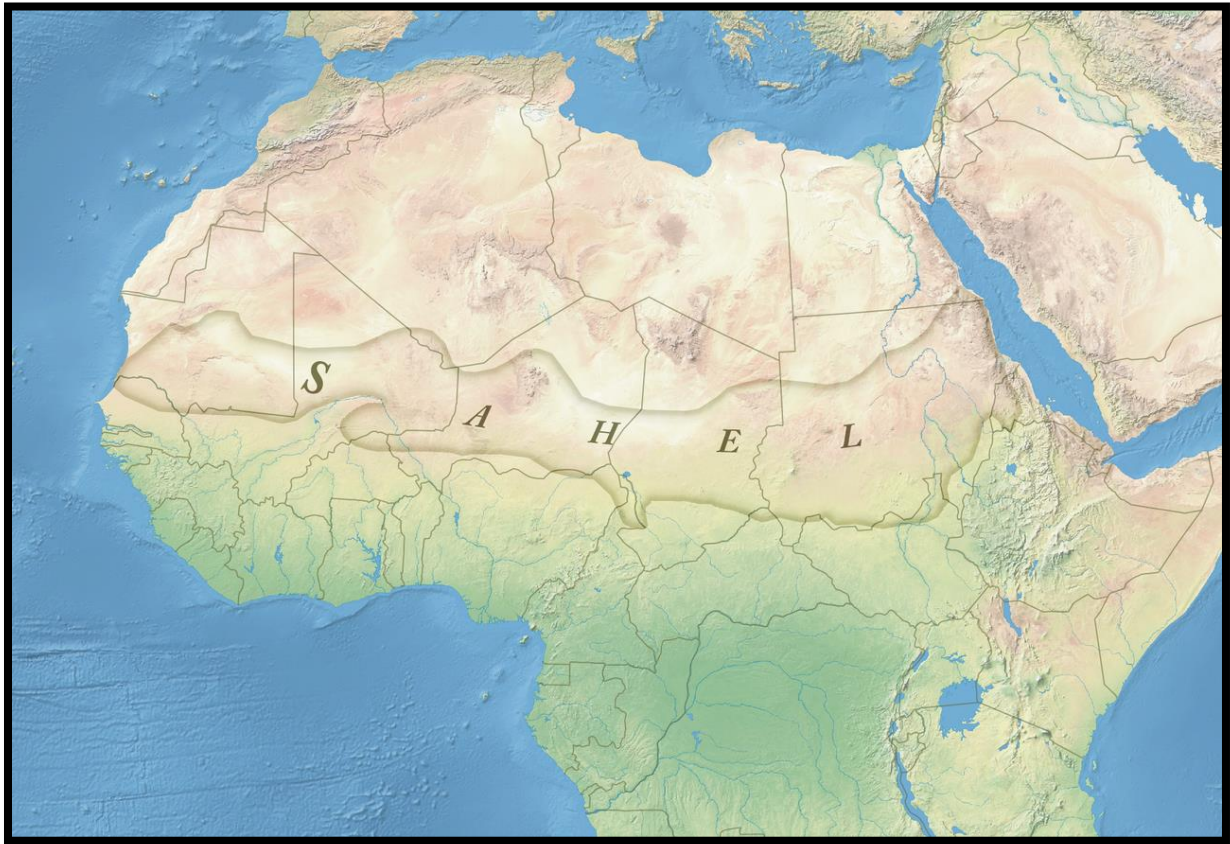


Illustration 92 - The Sahel belt (Image: Wikipedia)

Chad (the country where the latter "E" is located in) already declared a state of emergency. Furthermore, the war in Ukraine led to shortages of fertilizer and an increase in fuel prices, both of which are going to have severe consequences for agricultural production. The World Food Program estimates that in Ethiopia alone, 21 % of the corn harvest will collapse.

"Um Hunger-Hotspots zu entschärfen, wird, wie Terlinden sagt, "schnelle und massive Hilfe" nötig sein, das Thema müsse auf die Agenda des kommenden G-7-Treffens. Gestiegene Preise und Lieferengpässe werden dabei den Finanzbedarf für die internationale Hilfe in die Höhe treiben."

= "In order to mitigate the hunger hotspots, as Terlinden says, "quick and massive aid" is needed, this issue must be on the agenda of the coming G7-summit. Increased prices and supply shortages are going to scale up the financial requirements." (Süddeutsche Zeitung)

Currently, over 15 million people are acutely food insecure due to drought. At the beginning of the year it was 12-13 Million people. In case of continued rain fails and a failure of increased relief assistance, the number of acutely food insecure could increase to 20 million people by the end of the year. (source: [World Food Program](#))

In July a report was updated, there the WFP outlines the responds to the increased humanitarian needs across the region:

"In January 2022, the World Food Programme (WFP) released a six-month Drought Response Plan for the Horn of Africa. This Plan outlined the critical humanitarian needs and WFP's accompanying relief requirements necessary to respond to the already severe drought.

The humanitarian situation has subsequently deteriorated so severely that this Drought Response Plan has been updated to reflect the increased relief requirements, both in terms of more people in need and additional relief programmes.

The revised Plan covers WFP's drought response from May until the end of the year and adds Djibouti's drought-related needs to the severely affected countries of Ethiopia, Kenya and Somalia." (You can find the publication on the link I embetted above in "World Food Program", it is a PDF file - 21 pages in total)

Remember: starvation is not inevitable, as the WFP lays it out on page 3:

*"Despite these enormous humanitarian requirements, funding has not kept pace. **Less than 20 percent of what WFP required in January has so far been received and the needs have since dramatically escalated.** Accordingly, WFP is being forced to prioritize who receives assistance and who goes hungry. Indeed, resource shortfalls are so severe that WFP, in the midst of this devastating drought, has been forced to cut entire programmes. **In Somalia for example, despite the incredibly concerning nutrition situation, WFP has been forced to completely halt malnutrition prevention programmes so as to allocate existing resources solely to the treatment of malnutrition.**" and **"WFP is urgently calling for USD 982 million to help avert a major humanitarian crisis in the Horn of Africa and support almost 7.8 million people affected by the drought.** These requirements are in line with the 2022 Somalia and Ethiopia Humanitarian Response Plans (HRP), as well as the Kenya Drought Flash Appeal. Responding now is necessary to prevent the depletion of productive assets, the dramatic worsening of food security, escalating levels of acute malnutrition and ultimately save lives. Only by addressing the multiple needs of boys, girls, men and women can the impacts of drought be effectively mitigated."*

Tigre

Now to the war in Tigre. Here a short overview of the story:

"The conflict started on 4 November, when Ethiopian Prime Minister Abiy Ahmed ordered a military offensive against regional forces in Tigray.

He said he did so in response to an attack on a military base housing government troops.

The escalation came after months of feuding between Mr Abiy's government and leaders of Tigray's dominant political party.

For almost three decades, the party was at the centre of power, before it was sidelined by Mr Abiy, who took office in 2018 after anti-government protests.

Mr Abiy pursued reforms, but when Tigray resisted, the political crisis erupted into war."
(source: [BBC](#))



Illustration 93 - (source: BBC)

Since 1991, when Tigray People's Liberation Front (TPLF) overthrew the military junta government, the political scene of Ethiopia had been dominated by a coalition of four ethnically-based parties - TPLF playing an influential role. The country was federalized and autonomy given to Ethiopia's regions, but the party retained a tight grip on the central government. Prime Minister Abiy Ahmed (*15 August 1976), who ended a long-term territorial dispute with Eritrea which resulted in earning him a Nobel Peace Prize in 2019, dissolved said coalition in the same year and found the new Prosperity Party.

Tigray's decision to hold its own election in September was regarded as an *"unprecedented act of defiance"* against the central government. Then, both sides accused each other of being illegitimate. Since then it has only escalated: *"More than two million of Tigray's six million people have fled their homes since 4 November, when Mr Abiy ordered an invasion after the TPLF fighters captured federal military bases."*

A worsening factor is the food crisis, as we have discussed above. Additionally, Ethiopia is Africa's second-most populous country (121,456,213 as of 2019, source: [worldometers](#)) and crucial to stability in the Horn of Africa.

There's a concern that the conflict could worsen ethnic tensions and could even lead up to a

break up of the country, given the brutality of the war it may already be underway:

"Given this limitation, we represent the spatial distribution of fully documented civilian casualties in the form of a heatmap (instead of in absolute numbers), in which the varying colors visualize the intensity or magnitude and geographical distribution of casualties (Map 13).

While no numbers exist for the total amount of civilian casualties, well-documented cases of 3240 deaths (by 16 November) indicate that 8% of the dead are women, and 92% are men (Fig. 4.1). This is in line with an often stated intention to "eradicate Tigray fighters, as well as the future generation of fighters". Among the men, there are priests and deacons, traditionally people with authority in the community." (source: [Tigray: Atlas of the humanitarian situation](#), researchgate, p. 35) There's been a total of 283 massacres so far with at least 10,000 reported deaths (p. 39).

Comment: While the solutions for the hunger crisis are clear, at least the short-term, we are going to need solutions for the long-term as well so regions like the Horn of Africa, and East Africa in general, can cope with the changing climate (which is still going to affect us globally when we mitigate it, albeit being less severe). This includes technology transfer, cooperation with natives and investments into their future (e.g. resilient agriculture).

The war against the Tigre conducted by the Ethiopian government, with the help of the Eritrean government, is going to be more difficult. There, it is up to experts and those who know significantly more about international diplomacy.

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Tunisia

Tunisia, officially known as the Republic of Tunisia, is the northernmost country in Africa. To the West and Southwest it is bordered by Algeria, in the Southeast is Libya, and the Mediterranean Sea is to its North and East. It is located in the Magrheb region.



Illustration 94 - (source: Wikipedia)

There live about 11,694,719 people in Tunisia and the capital is Tunis, it is slightly smaller than the US-state Wisconsin ($169,640.0 \text{ km}^2$ vs $163,610.00 \text{ km}^2$).

A more detailed map of Tunisia:



Illustration 95 - (source: [worldatlas](http://worldatlas.com))

Tunisia's Independence and a Short-Lived Democracy

In 1956, Tunisia achieved its independence and, three years later, adopted a constitution which established a system that granted the president *"sweeping executive and legislative powers while placing narrow limits on the authority of the elected legislature and the judiciary"*. Until 1981, the Neo-Destour Party led by Tunisia's first president, Habib Bourguiba (1903-2000), remained the only legal party.



Illustration 96 - Habib Bourguiba (1960)
(source: [Wikipedia](#))

In 1981, some new political parties were permitted and in 1988 a multiparty system was granted. The first elections under this system was held in 1989.

However, since the new parties had neither the financial nor the organizational structure to form and mobilize a serious opposition, the Neo-Destour kept the monopoly on political activity. The Islamist Ennahda (Arabic: al-Nahḍah ["the Renaissance"]) Party was prohibited from gaining legal status due to laws that forbid political parties based on ethnicity, religion, region or language. Many of its leaders were jailed or sent into exile.

This changed in 2011 with what is now known as the Arab Spring (or Jasmine Revolution). The Ben Ali regime was ousted and by late 2011, the Ennahda had emerged as the strongest party in the country with 90 seats in the 217 member Constituent Assembly. They were tasked with drafting a new constitution to replace the now suspended 1959 text. At times, the tensions between the Islamists and secularists threatened Tunisia's transition to democracy, but they showed a tendency to compromise and cooperation. In 2014, after more than two years of negotiations, the Constituent Assembly voted overwhelmingly for the constitution*. In the elections later that year, neither Islamists nor secularists were put in a commanding position, so the largest party from either side formed a unity government.

Said unity government sabotaged itself with partisanship which rendered it ineffective in passing important legislation or appointing members to the constitutional court. Consequently, the court remained vacant and it plunged Tunisia into a constitutional crisis since the judicial body was unable to resolve the stand off between the parliament and President Kais Saied that began in January 2021.

In September, Saied suspended the constitution and put a new constitution to referendum in July 2022. After the constitution was certified by the referendum, Tunisia returned to a presidential system whose legislative and judicial bodies were significantly limited.

(source: [Britannica](#))

The economic legacy of the Ben Ali regime ([Economist Intelligence](#))

April 14th, 2014

I found an article on the impact of Ben Ali's regime on the economy and how, since its fall in 2011, it still affects the Tunisian people.

A study of the World Bank revealed the extent of the corruption, the title of said study was [All in the Family: State Capture in Tunisia](#) (PDF summary: 4 pages).

It was revealed that some 400 companies, 40 stock portfolios, 550 properties, 367 bank accounts and 48 boats and yachts were owned by 112 members of the extended family. By the end of 2010, this privileged group captured 21% of all private-sector profits.

According to the article, they were good at hiding it too:

"The corruption of the Ben Ali clan was well-known to most Tunisians, although the evidence was largely anecdotal and few, perhaps, realised its scale. Some detail was provided in November 2010 by the WikiLeaks diplomatic cables from the US embassy in Tunis that described the Ben Ali clan as a "quasi-mafia". However, the clan's tight control of the domestic media and its use of the repressive political system meant that its corruption was never publicly aired or challenged. Moreover, Mr Ben Ali was protected from personal criticism by a powerful cult of personality propagated by the state-controlled media. On the international scene, Mr Ben Ali's economic management appeared to benefit from being comparatively less bad than that of the country's regional peers.

Transparency International ranked Tunisia as one of the least corrupt states in the Arab world, while the World Economic Forum frequently ranked Tunisia as one of Africa's most competitive economies."

More about it: <https://country.eiu.com/article.aspx?articleid=191722203>

Comment: With Tunisia's young democracy gone, it seems like the last remnant of the Arab Spring disintegrated. Whether it is a temporary setback, or the beginning of decade-long rule, remains yet to be seen.

*You can read more about the constitution [here](#) (constitution net).

It is advantageous to know arabic, that is if you'd like to know about the Draft Preamble April 2012 (24 April, 2012) and Draft Preamble May 2012 (15 and 26 May 2012) which are only available in arabic. The January 2014 constitution got a commentary too.

The recently passed one is not yet available on the website, but that's a matter of time.

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(Released: 29th August 2022, 12:48 Uhr/12:48 am)

Tabellarius #002: Ukraine, Russia, Iran and the Armenian-Azerbaijan Conflict

The war in Ukraine continues, but the Ukrainians were able to take back a vast swath of their territory; meanwhile, in Russia, Vladimir Putin ordered a partial mobilization which was met with resistance; in Iran, the Iranian women take on the street to protest against their theocratic government sparked by the death of Mahsa Amini; and lastly, we take look at the violent conflict between Armenia and Azerbaijan.

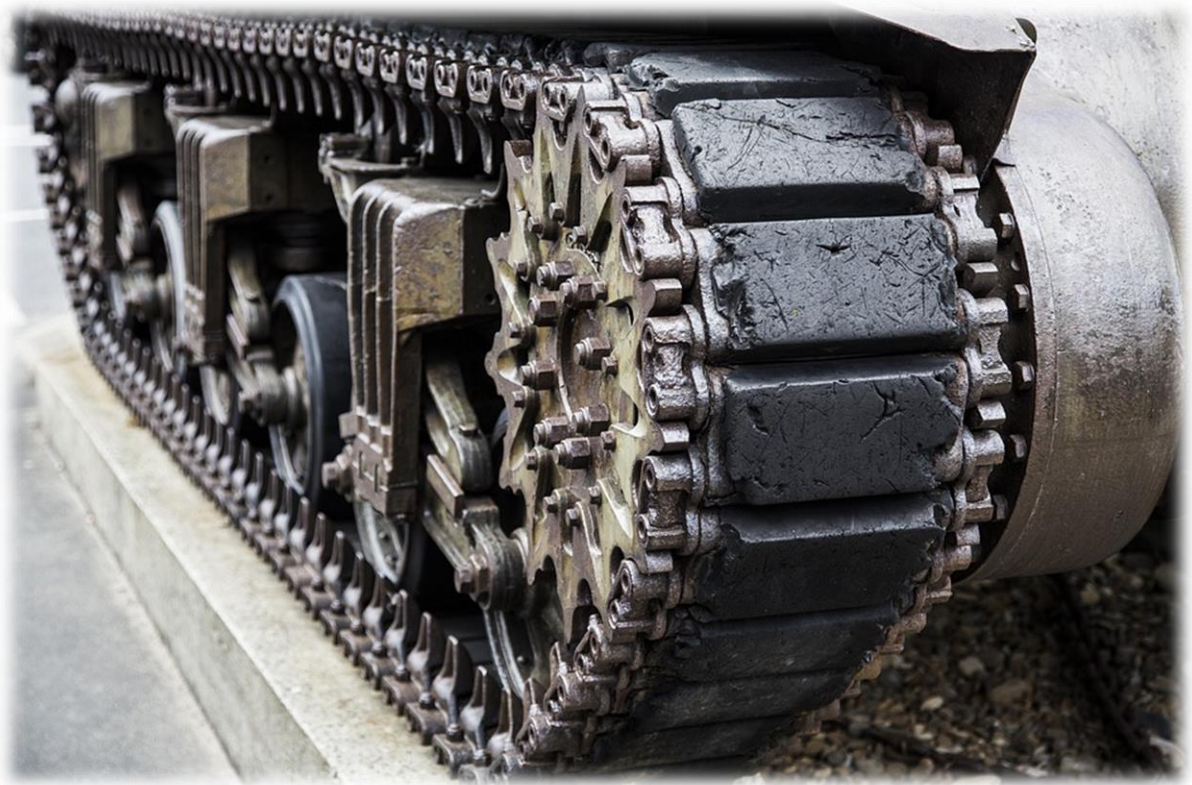


Illustration 97 - (source: Pixabay)

Ukraine

It's been 7 months and 5 days since the War of Aggression against Ukraine was started by Russia. Earlier this month the Ukrainian army was able to retake 3,000 km² of their territory in a swift counter-offensive according to Ukrainian chief commander General Valeriy Zaluzhnyi.

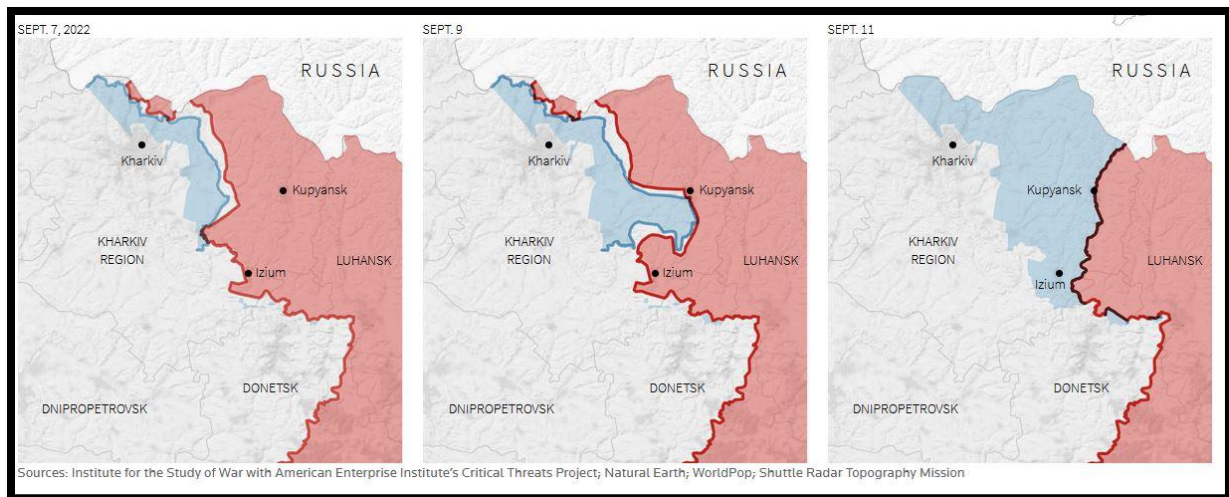


Illustration 98 - Blue: Ukrainian counter-offensive, Red: Russian-occupied Ukrainian territory
(source: [Reuters](#))

After their successful counter-offensive during which Izyum was liberated, mass graves were discovered with the remains of over 440 people. Moreover, Zelenskyy said that in the liberated areas of the Kharkiv region more than 10 torture chambers have been found. Some of the bodies that were recovered so far showed signs of torture, according to Ukrainian officials. *"The chief of the prosecutor's office for the Kharkiv region told the Reuters news agency that one body had apparently been bound with ropes around the neck and hands, and that other bodies displayed signs of violence."* (source: [Politico](#))

Izyum, Ukraine (source: [Encyclopedia Britannica](#))

First mentioned in 1571, Izyum has been a city in eastern Ukraine since 1639. The city is located 75 miles (120 km) southeast of Kharkiv on the Donets River and linked with it and Luhansk by rail. Izyum's industry includes railroad repair, brick making, brewing, and optical equipment manufacture.

As of 2012, there live 50,000 people there (due to displacement by the war, said deaths in the discovered mass grave and else, the number may already be much lower).

"The area was the field of numerous battles during the World War II. In January, 1942, the city was liberated by the Red Army forces but later, in May, 1943, the city was attacked again and thousands of Russian soldiers and officers were boxed in by Nazi Germany army. The city was finally liberated in 1943." (source: [ukrainetrek, city guide](#))

Last time I have shown you the civilian casualties was on August 28, 2022, here's the updated list as of September 25, 2022 (source: [OCHA reliefweb](#)):

- a total of 5,996 killed (2,334 men, 1,605 women, 157 girls, and 190 boys, as well as 35 children and 1,675 adults whose sex is yet unknown)
Increase: +482 total deaths (+209 men, +154 women, +10 girls, +20 boys)
- a total of 8,848 injured (1,850 men, 1,356 women, 191 girls, and 264 boys, as well as 221 children and 4,966 adults whose sex is yet unknown)
Increase: +1,150 total injuries (+290 men, +207 women, +27 girls, +33 boys)
 - o In Donetsk and Luhansk regions: 8,382 casualties (3,591 killed and 4,791 injured)
 - On Government-controlled territory: 6,657 casualties (3,213 killed and 3,444 injured)
 - On territory controlled by Russian armed forces and affiliated armed groups: 1,725 casualties (378 killed and 1,347 injured)
 - Increase: +896 casualties in Donetsk and Luhansk** (+318 killed and +518 injured)
 - o In other regions of Ukraine (the city of Kyiv, and Cherkasy, Chernihiv, Ivano-Frankivsk, Kharkiv, Kherson, Kirovohrad, Kyiv, Mykolaiv, Odesa, Sumy, Zaporizhzhia, Dnipropetrovsk, Khmelnytskyi, Poltava, Rivne, Ternopil, Vinnytsia, Volyn, and Zhytomyr regions), which were under Government control when casualties occurred: 6,462 casualties (2,405 killed and 4,057 injured)
Increase: +736 casualties (+164 killed and +572 injured)

I wrote about the refugees too who fled Ukraine, and as of September 27, 2022 there are 7,533,843 recorded refugees across Europe (**+668,218**). From last time, when 15.90 % of the Ukrainian population were fleeing, it is an increase of 1.59 % (i.e. now 17.49 %).

More about that on the UNHCR website: <https://data.unhcr.org/en/situations/ukraine>

War Crimes

The Independent International Commission of Inquiry of Ukraine (United Nations) investigated the regions Kyiv, Chernihiv, Kharkiv, and Sumy, where allegations of the most serious rights violations were made against Russian, or Russian-backed forces, early in the war:

*"Commission chairperson Erik Møse said that investigators visited **27 towns and settlements and interviewed more than 150 victims and witnesses**. They also inspected "sites of destruction, graves, places of detention and torture", as well as remnants of weapons."*

Findings

- **Unlawful killings:** In over 30 settlements carried out in Kyiv, Chernihiv, Kharkiv and Sumy regions by Russian armed forces between February and March.
- **Executions:** The Russian army carried out executions in 16 towns and settlements where the "common elements" of the crimes included **"visible signs of executions on bodies, such as hands tied behind backs, gunshot wounds to the head, and slit throats"**.

- **Sexual violence** against Ukrainian communities were committed as well, including children: *"He said investigators had identified victims of sexual violence aged between four and 82. While some Russian soldiers had used sexual violence as a strategy, the commission "has not established any general pattern to that effect", Mose added."* (source: [Reuters](#))

(source: [UN News](#), *"War crimes have been committed in Ukraine conflict, top UN human rights inquiry reveals"*)

The article also mentions that two instances of ill-treatment of Russian Federation soldiers by Ukrainian soldiers (which fall under human rights violation) that was part of the statement as Commissioner Pablo de Greiff said; the Russian aggressor on the other hand committed significantly larger numbers - as shown above - which amounts to war crimes.

The attention of the commission now turns to the "filtration" camps in Russian-occupied areas where Ukrainian soldiers were processed. They'll also investigate claims of forced transfers of people and adoption of Ukrainian children in Russia.

Regarding this investigation, just 15 days ago there was a Join Motion in the European Parliament where Section I outlined the afore mentioned claim:

"[W]hereas the Ukrainian Ombudsman, on 3 September 2022, claimed that more than 200 000 children had already been forcibly taken to the Russian Federation with the intention of making them available for adoption by Russian families and could verify the circumstances of the forced deportation of 7 000 Ukrainian children; whereas the Russian authorities are deliberately separating Ukrainian children from their parents and abducting others from orphanages, other children's institutions and hospitals before putting them up for adoption inside Russia; whereas this action by the Russian Federation is systematic and large-scale in nature, and includes the eradication of the deportees' personal records, among other offences[]".

(source: [RC-B9-0388/2022](#): JOINT MOTION FOR A RESOLUTION on human rights violations in the context of the forced deportation of Ukrainian civilians to and the forced adoption of Ukrainian children in Russia, European Parliament, Section I)

Author's Note: As I have argued before, we must continue to support Ukraine by sending it all the military equipment we can provide, as well as humanitarian aid. We should aim to soften the impact of the coming crisis in the Winter, as it has already been done and very likely has to continue until the end of the cold season. We won't be able to mitigate all the costs, but this also means a test of our democracies and how resilient they are. Hopefully this one is a mild Winter.

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(Written: 29th September, 2022)

Russia

You've already heard, read or seen it in the news by now that Vladimir Putin ordered a partial mobilization. But what does it mean and how will it affect the war?

What does 'partial mobilization' mean?

The Center for Strategic & International Studies (CSIS) explained it as follows:

"The decree implementing partial mobilization adds what is called "stop loss." Personnel will remain on active duty involuntarily until the end of partial mobilization. This is a sensible step when militaries face personnel shortages and large-scale military operations, as the personnel retained are already in units and trained. However, in the United States, "stop loss" proved to be controversial when implemented during the wars in Iraq and Afghanistan. Critics called it a "backdoor draft." The mobilization is limited to former military personnel.

Russia's Defense Minister Sergei Shoigu elaborated on the partial mobilization and said that it will be implemented in phases. Before the reservists go into war they receive an additional training of two weeks - which is not nearly enough by US standards.

However, despite NATO training thousands of Ukrainian troops, with some undergoing basic

training in United Kingdom and others receiving specialized training at bases throughout Europe, those are still in the minority while most of Ukraine's territorial army was provided with rudimentary training. On the other hand, the Ukrainian forces are highly motivated and well-equipped with weapons delivered by western countries.

The author argues that the action is similar to the partial mobilization of the US' [10 USC §12302: Ready Reserve](#) which was used several times in the past for Desert Storm and for the wars in Iraq and Afghanistan, as well as for smaller operations. Regarding the actual size of the mobilization - that's still speculative. Media reports cited the number of 300,000 troops being activated, however, this number didn't appear in the original speech. In Russia, bloggers claimed that the troop numbers could be 1 million. In any case, as the author elaborates, Russia's ability to *"induct, train, equip, and move troops to the front is limited"*. Consequently, it is going to be more of a stream than a surge.

Bureaucracy is a challenge too:

"Like many bureaucratic tasks in Russia, mobilization is being conducted using quotas levied on districts. The quota system decentralizes and simplifies execution but incentivizes local authorities to prioritize output at any cost. This can create abuses."

In addition to bureaucratic problems, security forces seem to be threatening demonstrators with mobilization, contrary to the announced policy."

A detail analysis can be found in the article ["What Does Russia's 'Partial Mobilization' Mean?"](#).

How it is going to affect the war is a question of how the mobilization will play out, for that I return once again to the article where they explain what to watch out for:

First, does domestic opposition interfere with the mobilization?

From a military point of view, the key question is whether such opposition significantly reduces the number of personnel available for mobilization.

Can Russian forces hold out until the mobilized personnel start arriving?

Although the front lines seem to have stabilized, the Russian position is fragile. It could crack in the weeks before mobilized personnel arrive.

Can Russia train and equip these forces?

Although the standards do not need to rise to the U.S. expectations, they do need to achieve a minimum level for personnel to be effective.

Finally, does Russian morale maintain at least a minimum level?

Russian morale has not been high, but the Russians keep fighting. A thousand years of history indicate that the Russians can continue fighting in conditions other nations might not tolerate.

Global Think-Tank Analysis

(source: University of Pennsylvania, 2019 Global Go To Think Tank Index Report)

While looking up the CSIS I found out about a paper which analysis think-tanks around the world (p. 71). Overall, it is 274 pages long and the CSIS got a very high rank there.

I may not have the time to read through it all right now, but maybe I awakened your interest: https://repository.upenn.edu/cgi/viewcontent.cgi?article=1018&context=think_tanks

Just one more thing: *"Putin aims to put the European populations under enough stress from the cold, inflation, and high energy prices that they demand an end to the war. [Survey data](#) indicates that the European populations support Ukraine in its fight for democracy but are ambivalent about providing weapons and becoming involved."*

Fake Referendums

There isn't much to add to what has already been said and reported on, but this sentence encapsulates it: *"The hastily organised votes across the four occupied provinces are part of Vladimir Putin's tempestuous response to unexpected reverses on the battlefield."*

(source: the Economist, ukrainecentral.org)

How long **an actual referendum** takes can be seen in South Korea as well as in the UK.

Note: Since they are sovereign territories of Ukraine, they'd be null and void regardless.

Luhansk, Donetsk, Zaporizhzhya and Kherson (as well as Crimea) belong to Ukraine.

The two examples show just how ludicrous said fake referendums were.

Agenda for Referendum and Notification of Referendum Day

(source: Republic of Korea National Election Commission)

"If the president may submit to a national referendum important policies relating to diplomacy, national defense, unification, and other matters relating to a national destiny or amendments of the Constitution, he/she shall announce the date of referendum and the referendum agenda **no later than 18 days before** the referendum day.

Important policies relating to diplomacy, national defense, unification, and other matters relating to a national destiny shall be notified **no later than 18 days before** the referendum day, and **amendments of the Constitution shall be notified for over 20 days** from the day the amendments are proposed."

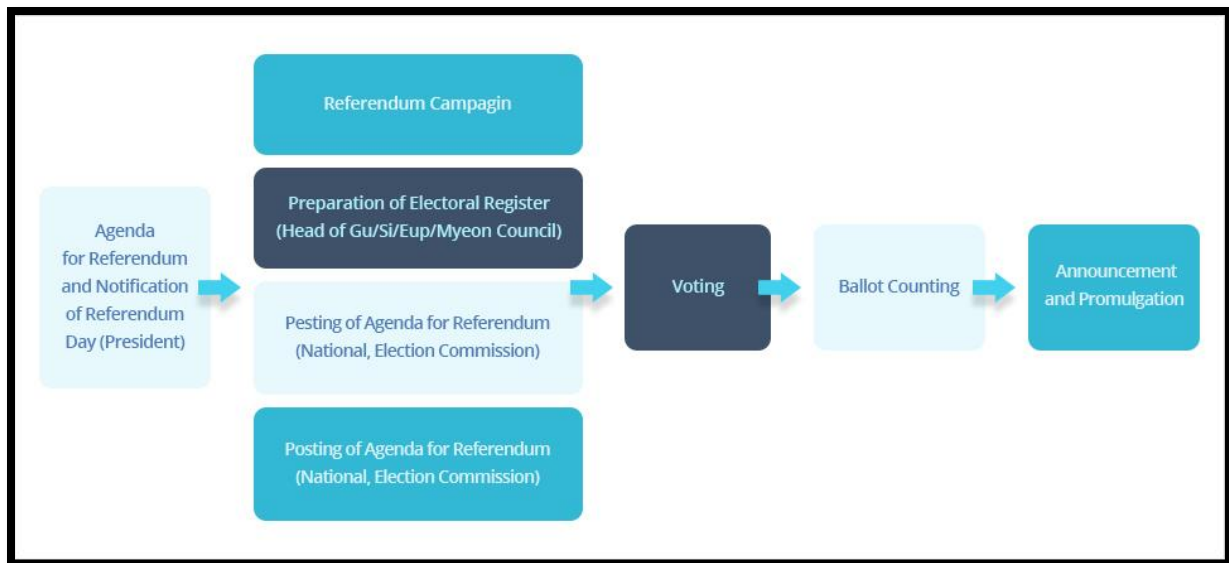


Illustration 99 - The Referendum Process (source: Republic of Korea, National Election Commission)

In the UK, the referendum to leave or remain in the EU started on February 20, 2016:

"David Cameron says the UK's in/out referendum will be held on 23 June this year - as widely predicted. If he had not got a deal on 18-19 February he would have had to return to Brussels at the end of February for a special summit or wait until the next scheduled gathering at the start of March."

His cabinet colleagues start to come out in favour or against Britain's membership as the rival campaigns kick into top gear." (source: [BBC, EU Referendum Timeline](#))

In May/April, the Electoral Commission designated the official Leave and Remain campaigns. They got access to £7m spending limit (public funds) and TV broadcasts. Overall, it took 4 months of preparations, campaigning and much work before that.

In other words: a democratically-held referendum is impossible within the short time frame of four days (23 September - 27 September). Moreover, democracy also means that there are secret ballots, not at gunpoint going from house to house and with the fear of repercussions. Democracy is more than voting for something, it is an entire system.

"Russia announced that its so-called "referendums" would be held across occupied Ukrainian [Luhansk](#), Donetsk, Zaporizhzhya, and [Kherson](#) oblasts on Sept. 23-27, in an attempt to legitimize its occupations of Ukrainian territories. Russia has control only over parts of these regions, while the provincial capital of Zaporizhzhya Oblast remains under Ukrainian control." (source: [SBU identifies, charges main organizers of sham referendums in Donbas, yahoohoo!news](#))

Author's Note: Whether Vladimir Putin will use it for nuclear escalation (i.e. strategic nuclear weapons) remains to be seen. Retreating is not an option, since it would only set a bad precedent and allow other nuclear armed nations to do the same. At the end of the day, it is about continuing to arm Ukraine with any weaponry we can deliver and strictly coordinate with the democratic Ukrainian government.

Source

What Does Russia's 'Partial Mobilization' Mean?

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(Written: 30th September, 2022)

Iran

On September 16, the 22-year old Mahsa Amini was declared dead. Before that she was taken into custody for not adhering to the Islamic dress code. The Iranian morality police claimed that she had a heart attack and fell into a coma. However, her father told the BBC that she was not in bad health.



Illustration 100 - Mahsa Amini (source: NewsZone)

Excerpt from the [BBC Interview](#):

"My son was with her. Some witnesses told my son she was beaten in the van and in the police station," he said "My son begged them not to take her, but he was beaten too, his clothes were ripped off.

"I asked them to show me the body-cameras of the security officers, they told me the cameras were out of battery."

Iranian authorities have said that Ms Amini had been wearing immodest clothes at the time of her arrest.

Mr Amini, however, said that she always wore a long overcoat."

In late-September she wanted to start studying microbiology at a university to become a doctor, according to her father. Her 23rd birthday would have been on September 22, 2022.

Iran Dress Codes including enforcement

(source: [Immigration and Refugee Board of Canada](#))

Article 638 of the Islamic Penal Code of Iran legislates it as follows:

"Anyone who explicitly violates any religious taboo in public beside [sic] being punished for the act should also be imprisoned from ten days to two months, or should be flogged (74 lashes).

Note - women who appear in public without a proper hijab should be imprisoned from ten days to two months or pay a fine of 50,000 to 500,000 Ryal [Iranian rials (IRR)] [C\$1.58-16]. (Iran 1996, Art. 638)"

When it comes to the hijab, we are already confronted with a problem as explained by the Immigration and Refugee Board of Canada:

"According to sources, no legal definition is provided for what constitutes a proper hijab (Ceasefire Centre, CSHR and MRG Sept. 2019, 36; US 13 Mar. 2019, 41). In practice, women must cover their hair with a headscarf and their arms and legs with loose clothing in public (Amnesty International 12 Mar. 2019; Australia 7 June 2018, para. 3.82). According to Amnesty International, authorities "have imposed forced hijab on girls as young as seven years old" (Amnesty International 12 Mar. 2019)."

Article 639 has been used for women who protested to wear a hijaba. It states:

*"The following people should be imprisoned from one to ten years, and in the case of category (a) the property should be confiscated according to decision of the court.
a. anyone who manages a property where activities against public moral take place;
b. anyone who encourages people to violate public moral [sic]. (Iran 1996, Art. 639)"*

However, other articles were used by Iran as well against anti-hijab protester:

"[...] Article 134 [1], which can be used to either increase (Observatory Aug. 2019, 14) or limit sentences imposed (Ceasefire Centre, CSHR and MRG Sept. 2019, 11). According to sources, article 134 was used against a prominent lawyer who defended anti-hijab protesters and was sentenced in 2019 to 33 years in prison and 148 lashes (Observatory Aug. 2019, 13-14; Ceasefire Centre, CSHR and MRG Sept. 2019, 11) to increase the punishment (Observatory Aug. 2019, 13-14)."

For further reading, I recommend reading the information in form of a PDF (12 pages, +10 empty) released by the Immigration and Refugee Board of Canada). Page 6 covers the social attitudes in Iran and how it affects women in day to day life.

Her death triggered the large protests we currently see. In fact, they are the biggest the Islamic Republic had [since 2019](#) when 200,000 people participated in anti-government protests. Back then 1,500 people were killed by the security forces ([Reuters](#)).

"About 1,500 people were killed during less than two weeks of unrest that started on Nov. 15. The toll, provided to Reuters by three Iranian interior ministry officials, included at least 17 teenagers and about 400 women as well as some members of the security forces and police."

We end this entry with the excerpt of [an article](#) written by an Iranian-American woman called Yasmin Vossoughian: *"And what's so remarkable about Iranian women is their power, their will, their intelligence, their achievements in spite of living in a theocracy that aims to oppress them. They are part of every level of society, from teachers, to doctors, to members of Parliament, even while the government tries to suppress them.*

[...]

These protesters – [these women](#) – are fighting for themselves and all of the women around the world who in some way, shape or form, have been treated as less than. And as we watch

from afar, they're showing what needs to be done to catalyze change in the face of oppression. They are our future and the future of Iran"

Author's Note: I wish the Iranian protesters good luck and success! May they emerge victorious against their brutal oppressors.

Source

Iran: Mahsa Amini's father accuses authorities of a cover-up
<https://www.bbc.com/news/world-middle-east-62998231>

Iran Dress Codes including enforcement (PDF, 12 pages)
<https://www.justice.gov/eoir/page/file/1258241/download>

Timeline: Iranian Unrest Leading up to Mahsa Amini's Death in Police Custody
<https://www.usnews.com/news/world/articles/2022-09-22/timeline-iranian-unrest-leading-up-to-mahsa-aminis-death-in-police-custody>

Special Report: Iran's leader ordered crackdown on unrest - 'Do whatever it takes to end it'
<https://www.reuters.com/article/us-iran-protests-specialreport-idUSKBN1YR0QR>

Why Mahsa Amini's death could be a turning point for women in Iran
<https://www.msnbc.com/know-your-value/out-of-office/why-mahsa-amini-s-death-could-be-turning-point-women-n1299203>

(Written: 1st October, 2022)

Armenian-Azerbaijan Conflict

The ongoing conflict in Nagorno-Karabakh is the longest-running in post-Soviet Eurasia. Here I present the history of the conflict from its beginning in 1988 to 2022.



Illustration 101 - Flag of Azerbaijan (left) and Armenia (right)
(source: [European Public Service Union](#))

History

In order to understand the full scope of the conflict, we have to travel back in time.

- **1813**
The Russian Empire acquired the region Nagorno-Karabakh.
- **1923**
Under Soviet rule, it was established as an *"Armenian-majority autonomous oblast of the [Azerbaijan](#) S.S.R. Detached from the Armenian S.S.R. to the west by the Karabakh Range"*.
Thus it became a minority enclave within Azerbaijan.
- **1923-1987**
Nagorno-Karabakh developed quietly throughout decades of Soviet rule.
- **1988-1994**
Ethnic Armenians began to advocate for their oblast to be transferred to Armenian jurisdiction - both the Azerbaijan S.S.R. and the Soviet government opposed it. With the collapse of the Soviet Union in 1991 Azerbaijan and Armenia gained their independence, ethnic tensions intensified and they went to war over the enclave. A cease-fire agreement was reached in 1994, the negotiations were guided by Russia and a committee informally known as the Minsk Group. It was periodically violated but upheld for the most part.
- **1992**
Self-proclaimed Republic of Nagorno-Karabakh declared its independence, internationally not recognized.
- **2008**
Landmark agreement signed between Nagorno-Karabakh born Armenian president Serzh Sarkisyan and Azerbaijani president Ilham Aliyev *"pledging to intensify efforts toward a resolution of the conflict over the Nagorno-Karabakh region"*.
- **2010s**
In these years episodic clashes occurred between the two countries, despite occasional gestures of rapprochement.
- **2019**
New government in Armenia sparks hope for renewed negotiations regarding Nagorno-Karabakh.
- **2020**
Clashes in July after a breakdown in diplomacy. Albeit short, Russia - the guarantor of American security - conducted unilateral military drills near the Caucasus only days after the cease-fire. Soon afterwards, Turkey held joint military exercises with Azerbaijan.

As a consequence, on September 27 both sides were better prepared than in July and since Azerbaijan was firmly supported by Turkey, they felt emboldened. The resulting conflict quickly escalated to the worst fighting since the early 1990s.

The casualties were high due to the brutal ground war where cluster munitions and ballistic missiles had been used. Drones played a role as well by capturing footage that was used to fuel the information war on social media.

On November 9, Russia brokered a cease-fire deal after the Armenian forces were devastated by the war: *"The deal required Armenia to relinquish its military control over Nagorno-Karabakh and allowed Russian peacekeepers to guard the region for five years. The deal also guaranteed that Xankəndi (Stepanakert) would retain access to Armenia through the Lachin Corridor mountain pass."*



More about Nagorno-Karabakh here: <https://www.britannica.com/place/Nagorno-Karabakh>

The Wars in Detail

Now we dive deeper into this bloody conflict, for this I use the information provided by the International Crisis Group. Their visual explainer is embedded as a link at the end of this section.

1988-1994

After the fighting ended, Armenia controlled Nagorno-Karabakh, and 7 neighbouring districts where either wholly or partially controlled. It wasn't limited to territorial changes:

Azerbaijanis living in Armenia and the now-controlled territories fled Armenia, while Armenians left their homes in Azerbaijan. In total: over one million fled as a result.

Human Rights Watch World Report 1994 - Azerbaijan

(source: <https://www.refworld.org/docid/467fca891e.html>)

Armenians in Azerbaijan

"Because of the ongoing war in Nagorno Karabakh, Armenians remaining in Azerbaijan – mostly people in mixed marriages – faced the danger of being seized hostage, having their apartments confiscated and other forms of persecution. In February the Gray Wolves, a Turkish-oriented paramilitary group, repeatedly published lists of twenty-two Armenians who had changed their last names and national identity as indicated on Soviet-era passports, in order to escape persecution."

The Armenian Offensive

"The towns' capture [Kelbajar, Agdam, Fizuli, Goradiz, and Jebrail] came at staggering human costs, creating 250,000 new Azerbaijani refugees. Civilians fled Kelbajar in April through high mountains still covered with snow. Refugees claimed that hundreds of people froze to death attempting to flee. Following the attacks on Fizuli, Goradiz and Jebrail, about 150,000 refugees flocked toward the Iranian border in August, where the U.N. High Commissioner for Refugees (UNHCR) and other relief organizations set up refugee camps. Hundreds of civilians were either killed or wounded in this offensive."

1994-2020

During this time, irregular deadly instances occurred which involved attack drones and heavy weaponry on the front lines as well as activities of special operations forces. They were a reminder of the ever-present risk of a reignition of the war. In April 2016, hundreds were killed in a four-day intense fighting period at the line of separation.

The four-day war in Nagorno-Karabakh

(source: [Centre for Eastern Studies](#))

The analysis by the institution explains why it is difficult to determine the amount of casualties: *"The exact number of casualties is unknown; both sides have admitted to at least 60 dead soldiers and several civilians, and it is possible that the figures have been under-reported. Baku, Yerevan and Stepanakert have also been disseminating war propaganda and deliberate misinformation campaigns, so it is difficult to verify many of the reported facts (such as the alleged murder of Armenian civilians in the village of Talysh)."*

The end of this intense fighting was as sudden as its beginning. On April 5, the parties to the conflict stated that hostilities were suspended - first the Karabakh separatists, then Armenia, and lastly Azerbaijan.

Furthermore, it is argued that Azerbaijan was most likely responsible for the escalation: *"[...] as for many years it has been promising to liberate the territories occupied by the Armenians (i.e. the area of Nagorno-Karabakh and the territories adjacent to it, which Armenians took over during the war in 1991-94) if it failed to achieve anything in the peace nego-*

tiations." And the potential role of Russia: *"Nevertheless it is possible that Azerbaijan did not act alone, and that Russia may have at least been aware of Baku's intentions. In recent years, Russia has reactivated its policy in the Caucasus, where its main objective is to strengthen its dominance in the region. By changing the status quo and the format of the ceasefire in Nagorno-Karabakh (including by marginalising the OSCE's Minsk Group), and imposing a resolution on the warring parties that only Russia could guarantee (primarily involving the introduction of Russian peacekeeping forces in the conflict zone), Russia could achieve this aim."*

27 September 2020 - 10 November 2020

A renewed flare-up of the war which lasted for six weeks.

Over 7,000 military and 170 civilians were killed, many more were wounded.

The Russian Federation brokered a ceasefire; Nagorno-Karabakh and its seven districts adjacent to it were now under full control of Azerbaijan again. A Russian peacekeeping force patrols the rest, self-proclaimed authorities still govern them though.

Nagorno-Karabakh: Armenia's surrender, Russia's success

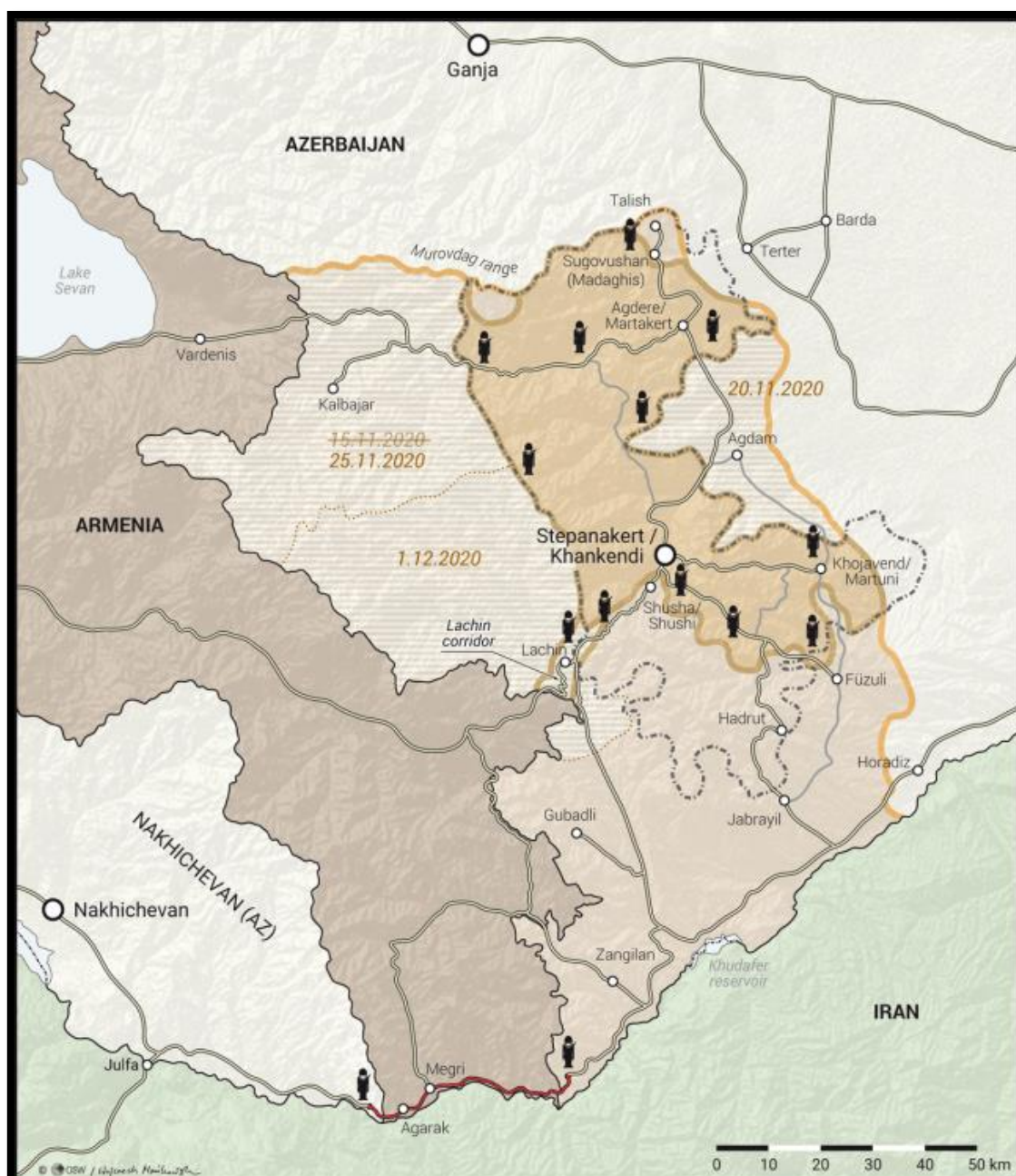
(source: [Centre for Eastern Studies](#))

After the truce was reached, Russia tasked its 15th Mechanised Brigade with carrying out peacekeeping activities. They were deployed along the demarcation line.

For Russia, this was a success since it was able to regain influence over the region:

"Moscow has strengthened its presence in the South Caucasus region; its peacekeepers are to be stationed on the spot for five years, with the possibility of extending their stay for further five-year periods (with the consent of the warring parties). The deployment of the Russian contingent and its supervision of the transport links which are important to both sides (between Armenia and Nagorno-Karabakh, and between Azerbaijan 'proper' and Nakhchivan) will allow Moscow to keep both countries within its zone of influence."

Armenia, on the other hand, perceived the agreement as a humiliation. This quickly led to escalations domestically: *"At night, upon the news of the agreement, a crowd gathered on the streets of Yerevan and broke into the prime minister's office (Pashinyan's office was demolished). The speaker of parliament, Ararat Mirzoyan, was badly beaten. In the coming days and weeks, very serious internal disturbances are highly probable, and Pashinyan himself may lose power (a situation made more likely because the Kremlin does not trust him). At this stage Armenian society is not ready to accept that the truce just concluded is the lesser of two evils – the war has been stopped, and the presence of Armenians in a part of Nagorno-Karabakh, including Stepanakert, has been guaranteed."*









-  Likely extent of the areas that will come under Azerbaijan's control in accordance with the truce of 10 November 2020 (with dates when each area is to be handed over):
 - Agdam district: 20 November 2020
 - Kalbajar district (raion): 25 November 2020 (new date)
 - Lachin district: 1 December 2020
- Areas in block colours were captured by Azerbaijani troops during the fighting (27 September – 9 November 2020)
-  Probable shape of the 'new Nagorno-Karabakh' (Russian peacekeepers will be stationed along the contact line, including in the Lachin corridor)
-  Russian presence in the conflict zone (peace forces and border troops)
-  Border of the former Nagorno-Karabakh Autonomous Oblast (as part of the USSR)
-  Future land connection to Nakhchivan (under the control of Russian border troops)
-  Main roads

Illustration 102 - (source: Centre for Eastern Studies)

As the history of the conflict has shown, this wouldn't last for long. Especially since the relocation of the frontlines made the region more volatile: opposing military positions were hundreds of metres apart before the war, after the war only 30-100 metres.

Moreover, the military positions moved closer to civilian settlements too.

The main roads are patrolled by the Russian peacekeeping force, and their outposts are deployed near Armenian-populated areas of the conflict zone and the main traffic artery between Armenia and Nagorno-Karabakh which includes the Lachin corridor (see map above). 20 km away from the frontline, in Azerbaijani territory, the joint Russian-Turkish monitoring centre was established.

Since the ceasefire, there were at least 243 casualties: 74 combatants and 36 non-combatants were killed, 59 combatants and 74 non-combatants wounded.

For further information, read "[The Nagorno-Karabakh Conflict: A Visual Explainer](#)".

Their interactive maps are worth checking out, and there's more information that I couldn't fit in this section of my entry.

13 September 2022 - 14 September 2022

In the 48 hours of fighting between Azerbaijan and Armenia, 207 Armenian and 80 Azerbaijani soldiers were killed. The fighting erupted at several spots along Armenia's eastern border with Azerbaijan, then spilling into key towns of Armenia. Unlike in previous years, the hostilities covered a much larger territory. The Azerbaijan army took control of an area measuring 10 km² inside Armenia. Four civilians were killed and dozens were wounded by the shelling, according to Yerevan. 2,700 civilians had to be evacuated.

"In Armenia and Nagorno-Karabakh, residents shaken by the latest burst of violence braced themselves for what could be coming. Addressing the UN General Assembly on 22 September, Prime Minister Pashinyan [warned](#) that the threat of a new offensive remained "very high". He expressed concern that "Azerbaijan intends to occupy more territories of Armenia". In Yerevan, rescue workers began the grim task of checking whether bomb shelters were ready for use. Azerbaijan, too, is warning of the ceasefire's fragility and stressing the need to reach a final peace deal. "For stability to be durable, we need to agree", Azerbaijan's foreign minister, Jeyhun Bayramov, told Crisis Group on 22 September." (source: [Upholding the Ceasefire between Azerbaijan and Armenia](#), International Crisis Group)

As for the reasons, there are four possibilities:

1. Azerbaijan takes advantage of the Ukrainian-Russian War

Moscow and the co-chairs of the OSCE Paris and Washington are distracted by the war. The aim, in this case, is to gain a strategic advantage by conquering more territory.

2. Azerbaijan may be in a hurry

With the Turkish elections coming up (June 2023), President Aliyev may seek a peace accord in the next two to three months. A pro-government analyst in Baku claims that while any Turkish government supports Azerbaijan, a weakened Erdoğan can't protect Azerbaijan's interests against Russia.

3. Securing a special land corridor

Currently policed by the Russian border guards, the corridor leads through Armenia to the Azerbaijan exclave Nakhchivan. On the 31 August Summit, the diplomatic solution failed. Additionally, on 15 September Armenia's UN envoy warned of an Azerbaijani offensive.

4. Regain control of 8 villages

Lastly, it could be about the eight Armenian controlled villages inside the UN-recognized Azerbaijan border. Armenia also has an exclave in Azerbaijan, known as Artvashen and controlled by Baku. A local expert told Crisis Group that the newly conquered Armenian territories could serve as a bargaining chip to get the exclaves back.

Armenia would want international guarantees for any peace agreement, and here the EU may play the key role: *"Brussels will likely be part of the answer. With the U.S. and France at loggerheads with Russia over Ukraine, the European Union has emerged as the diplomatic lead among the Western actors. The EU has brought the Armenian and Azerbaijani leaders together four times since the November 2020 ceasefire, and shows every sign of continuing its efforts. Already, it has called for all forces to return to positions held prior to the 13 September escalation, and European Council President Charles Michel has promised that the bloc is committed to its role as "an honest broker". But while the parties generally have welcomed these efforts, some observers wonder whether Brussels has enough influence over Baku to be effective."* The authors of the article argue that the four main mediators are still needed, that means Russia, the EU, France and the US.

The author claims that it will be vital to convey a sense of urgency, because the frequency of fighting in 2022 could too easily lead to a flare up of the 30-year old conflict.

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