

**SAFE  
GROUND**  
*Reducing impacts of war*

**MIDDLE  
GROUND**

# MIDDLE GROUND

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## MiddleGround Issue 1/2022

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# TO OUR SUPPORTERS AND THOSE WHO HAVE JUST FOUND US,

In the last year SafeGround has been busy working to Stop Killer Robots.

We have developed our Stop Killer Robot campaigning in Australia, and regionally in the Pacific. Highlights have included a notice of motion and a compelling speech on autonomous weapons by Maria Vamvakinou MP, an Interfaith session on killer robots with 50 participants from religious groups and faith communities Australia-wide, including and screening of Immoral Code - a new documentary by the global campaign. We also ran webinars with Amnesty International and Stop Killer Robots Aotearoa New Zealand. All the while, we have been monitoring Australia's position on autonomous weapons and engagement in international talks. Australia must join calls for a new international treaty on autonomous weapons. Department of Defence developments with autonomous weapons cannot continue without proper guardrails and assurances of human control embedded in our policy. Addressing the United Nations General Assembly, Foreign minister Penny Wong said, "It is up to all of us to create the kind of world to which we aspire - stable, peaceful, prosperous and respectful of sovereignty." In our view, such a world must be free from killer robots and digital dehumanisation. We hope this government shares our vision



and moves to take urgent action to ban fully autonomous weapons.

We are developing an AI and Killer Robot walking tour in Melbourne and we are looking forward to its release and being able to offer this activity.

This year SafeGround has engaged Pacific nations and civil society about the campaign to stop killer robots. This took us from Geneva to New York where Pacific Island states are better represented. Via zoom we have presented two informal briefings for small island development states at the UN, hoping that they will bring the topic of regulating lethal autonomous weapons to the UN general assembly. We have found potential partners in Fiji and later this year we are screening a film called the Immoral Code film in Fiji followed by a discussion with peace and student organisations.

**SafeGround Committee**  
September 2022

# LETTER FROM THE MIDDLEGROUND EDITOR

Some things have changed for MiddleGround, no surprise for a publication like ours. We've moved to a biannual release cycle, something we actually did all along given we only managed to publish two quarterlies. Partly this is a move to spend more time working on pieces but also because like everyone else over the past 6 months we too have needed a bit of a break. But other things are hopefully fairly familiar.

This issue sees some of the SafeGround team; John Rodsted, Elyse Cunningham, Amarens Breteler and Jeanne Wills reporting. John keeps us up to date on what is happening with mapping of munitions used in Ukraine. Elyse, while working on SafeGround's Stop Killer Robots regional campaigning in the Pacific, gives a breakdown of how AI is being used to measure the health of oceans around the world. Amarens looks into the flaws of AI being used in surveillance and its recent applications in justice systems. Jeanne lays out the competing dynamics at play in the South-China Sea and the Indo-Pacific more broadly, a region we've seen in recent weeks to be geopolitically, tense to say the least.

The photographs in this issue tell stories closer to home. We are documenting the recent refugee advocacy movements in Brisbane and Melbourne. This is a collaboration between Jesse Gray, a first year Photo Doc student at RMIT and myself, and we aim at providing a multi layered, but brief

insight into the movements. We also take a look at the war in Ukraine, with pieces on the use of both cluster munitions and landmines by Russia, Micah Coto in his piece *Russia's Arsenal: Cluster Munitions Brought to Bear in the Invasion of Ukraine*, breaks down the use of the globally banned munition.

We also have a piece by *MiddleGround* Editor, Isabella Porras as a part of our new Water Story Dispatch. This is a collaboration with the environmental communications group *The Water Story*. Through photographs and text, Isabella documents how a silkworm farmer from Bangalore is using sewage to save water.

It's an exciting mix of stories covering much of the spectrum of issues facing humanity today. As usual we try to tell relevant stories, from unique voices and meaningful perspectives.

We hope you enjoy reading,

Sincerely,

**Rhett Kleine, Managing Editor**



# STORIES BY SAFEGROUND

## UKRAINE'S LETHAL LEGACY

### Story by John Rodsted

The war in Ukraine continues and the scope and scale of a dangerous legacy increases every day. Both Russian and Ukrainian munitions are building up around the Ukraine as battlefields move on, weapons fail, and stockpiles are abandoned.

All governments and NGOs with any long-term interest in Ukraine are watching with a keen eye as to what has been used, by who and where. The more information that is gathered now will help speed up any eventual response to clean the country from explosive remnants of war (ERW), as soon as possible.

To date the catalogue of weapons used by both sides represents the usual refuse of conflict. Mortars, artillery, rockets, bombs, missiles, guided systems, anti-personnel landmines, anti-vehicle mines, cluster munitions, and so much more is littering the landscape. This poses a very dangerous legacy for communities now and after the conflict.

The Geneva International Centre for Humanitarian Demining, GICHD, has been collecting as much information as possible on what has been used and found in Ukraine so clearance operators can plan responses. They have assembled what they have to date into a [Field Identification Guide](#) that they are now distributing.

The Guide is a chilling catalogue of danger that will cost the lives of returning civilians once the fighting moves down the road.

Ukraine will need a lot of help after the conflict to clean up this dangerous legacy and this will need to be in the form of money, effort and boots on the ground. Clearance is detective work. Teams of clearance professionals and researchers will begin searching the country for impacted areas and then channel efforts to clean up explosive remnants of war in those locations.

As with any conflict it is the ordinary person who is impacted the most and for the longest period. These are the true victims of any war. To limit this misery there is a simple





**GICHD**



# EXPLOSIVE ORDNANCE GUIDE FOR UKRAINE

*Image left: A page excerpt from the Ukraine field guide 'Explosive Ordnance Guide for Ukraine, Second Edition' by The Geneva International Centre for Humanitarian Demining.*

scale. "Money = Time = Lives". If more funds hit the ground quickly, it will speed up the clearance and make the land safe sooner. Only then can the people of Ukraine live on safe ground.

*A SafeGround Story in the MiddleGround Issue 1 2022*

## 240MM F-864



Image © SESU

ORDNANCE SUB-CATEGORY	Mortar Round
EXPLOSIVE FILL (g)	31900 TNT
AUW (g)	130700g
DIMENSIONS (mm)	1541x240
COUNTRY OF ORIGIN	Russia
FUZE	M-16

The 240mm F-864 mortar is most commonly associated with the Russian 2S4 Tyulpan (tulip) self-propelled mortar.

The F-864 is often fuzed with mechanical impact fuzes, most likely the M-16. When not fuzed the rounds are shipped with a grey transit plug as seen above. Each fuze well typically has some form of fuze adaptor. The mortar uses a primary cartridge which is fixed within the tail. The bagged supplementary propelling charges associated with this type of mortar ammunition are very easily damaged and care should be taken not to spill propellant during handling.

MORTAR ROUNDS | 99

# A TUG OF WAR

## THE INDO-PACIFIC

Story by Jeanne Wills

It might be curious to some that a German frigate was deployed to the South China Sea for the first time in 20 years. The test of the Beijing-Berlin relationship demonstrates another western country's condemnation of China's territorial claims in the area, which are rapidly increasing century-old tensions. The geographical features of the South China Sea are ostensibly insignificant, home only to small islands, shoals, reefs, and rocks. But they lay in one of the globe's most fervently contested waters and are proving a tension point for geo-politics around the world.

The 'ASEAN Outlook on the Indo-Pacific', released by the Association of Southeast Asian Nations in 2021, saw the official adoption of the term 'Indo-Pacific' rather than 'Asia-Pacific' region in an attempt to regain control of the US and China's rival geopolitical narratives. The Outlook connects "the Asia-Pacific and Indian Ocean regions, not as

contiguous territorial spaces but as a closely integrated and interconnected region, with ASEAN playing a central and strategic role". Basically, the area encompasses the Indian Ocean, the Pacific Ocean and the surrounding territories, countries and landmasses, as well as the subcontinent of India.

The shift away from the Asia-Pacific to the Indo-Pacific began well before 2021 and is geographically and politically profound. It suggests the shifting influence and power from the West to the East. China's foreign policy seeks global expansion and consolidation, a move largely consolidated in their plans for the 'One Belt One Road' initiative. Whereas, India's policy reflects a desire to flex their growing power. Japan seeks more influence in the region and wriggle room in which they might rebuild their armed forces past the post-WW2 caps on their military capacity agreed upon in their surrender to the US. America's policy condemns not only the economic tendrils of the People's Republic of China but the







*the contested area of the South China Sea. - (Google Earth Image)*

strategic moves they're making to secure military capabilities where their interests lie, while Australia hurriedly builds alliances and arms itself, precariously orientated against their biggest trading partner.

It is a defining area of policy and geo-political alignment, largely in response to China's territorial claims and the unprecedented economic investment in the region versus decade-old US-India defence and strategic ties. Whilst these are the most prominent 'players' on the global stage, there are many more nations vying to stake a claim or gain influence in the region. Small Pacific Island nations continue to be victimised by global politics where we can see the Solomon Islands, Kiribati, Papua New Guinea, Vanuatu, Samoa and Tonga (to name a few) entangled in global agendas. While there is a role for developed, wealthy nations to play in aiding the development of the Pacific, it is concerning that many of the deals are seemingly a long winded opening move for a bigger goal where China has emerged as a major threat in the area for Western powers.

The geopolitics of the Indo-Pacific today is multi-faceted and is constantly evolving, this article provides some background to the current hostilities and rising tensions. China wants to consolidate its territory and its economic development for years to come. The US and its Allies want to preserve a global world order, which in part, keeps them on top.

## **Race for resources**

Territorial disputes between the coastal states of the South China Sea have hindered extensive exploration of natural gas and oil in the area. The varying estimates of potential reserves are enough to be a significant factor in the Indo-

Pacific contest. The US Energy Information Administration estimates 11 billion barrels of oil reserves and 190 trillion cubic feet of natural gas reserves in the South China Sea. The Chinese National Offshore Oil Company estimated in 2012 that the South China Sea holds around 125 billion barrels of oil and 500 trillion cubic feet of natural gas. By contrast, energy consultancy business Wood Mackenzie estimates the sea to only contain 2.5 billion barrels of oil. Whether it be the largest or smallest estimate, oil, gas and other resources is one of the salient sites of contest between the South China Sea's claimants.

The South China Sea is also a biologically resource-rich area. It accounts for 12 percent of the global fish catch despite being only 2.5 percent of the global ocean area. Since the 1950s, this sea has been exploited to the point where fish stocks have been depleted by three quarters. And there has been little evidence to show that fishing activity has been moderated to match sustainability. Coral reef coverage has also significantly declined from damaging fishing practices and the construction of artificial islands. China's fishing practices in the disputed areas continue to deplete the South China Sea's marine life to the point of destruction where fishing has become another source of tension between the coastal states.

In 2012, a warship from the Philippines and a Chinese surveillance vessel came to a tense stand-off in the Scarborough Shoals, an area claimed by the Philippines. Filipino sailors boarded eight Chinese fishing vessels and after discovering illegally fished resources attempted to arrest the fishermen. China retaliated by blocking the Filipino ship. In a sign this issue is ongoing, last year it was reported that nearly 300 illegal Chinese fishing boats were operating in and exploiting the contested area.



*The Scarborough Shoal incident marked the first of many physical stand-offs between claimants*

The 2016 figure for trade through the South China Sea is US\$3.37 trillion covering a third of global shipping. The key countries which rely on the South China Sea are China, Japan, India, South Korea and Indonesia. 60 percent of China's trade utilises the South China Sea which passes through the narrow Malacca Strait, which connects the Indian Ocean with the Pacific. Lying within the territorial waters of Indonesia, Malaysia and Singapore. China's deteriorating relationship with India and increasing tension with the US and the broader Western Bloc makes this bottleneck increasingly volatile. Whoever can stake the most fervent claim will have an incredibly key piece of trade route real estate.

China's militarisation of the South China Sea islands is the focus of tensions where conflict would inevitably close the Malacca Strait. This would divert shipping routes around the South of Australia. In this case, Chinese control over this ocean would impose a financial burden for smaller countries due to increased freight costs. Control over the South China Sea would also act as a buffer zone for China in any potential conflict with the US and other nations.

In its 4,000 year history China has never possessed any genuine military capacity at sea. They also hadn't consolidated the heartland of the Central Asian Plain until the annexation of Tibet in 1951. Having gained full ownership to the Yellow River, the cradle of what was to become the modern China was secured. Becoming an economic and military powerhouse, China has since been looking outward to Africa, South America and the Indo-Pacific. An effort that might be seen as a step past 1951, towards securing their present and building towards the Chinese Communist Party's ideal for the China of tomorrow.

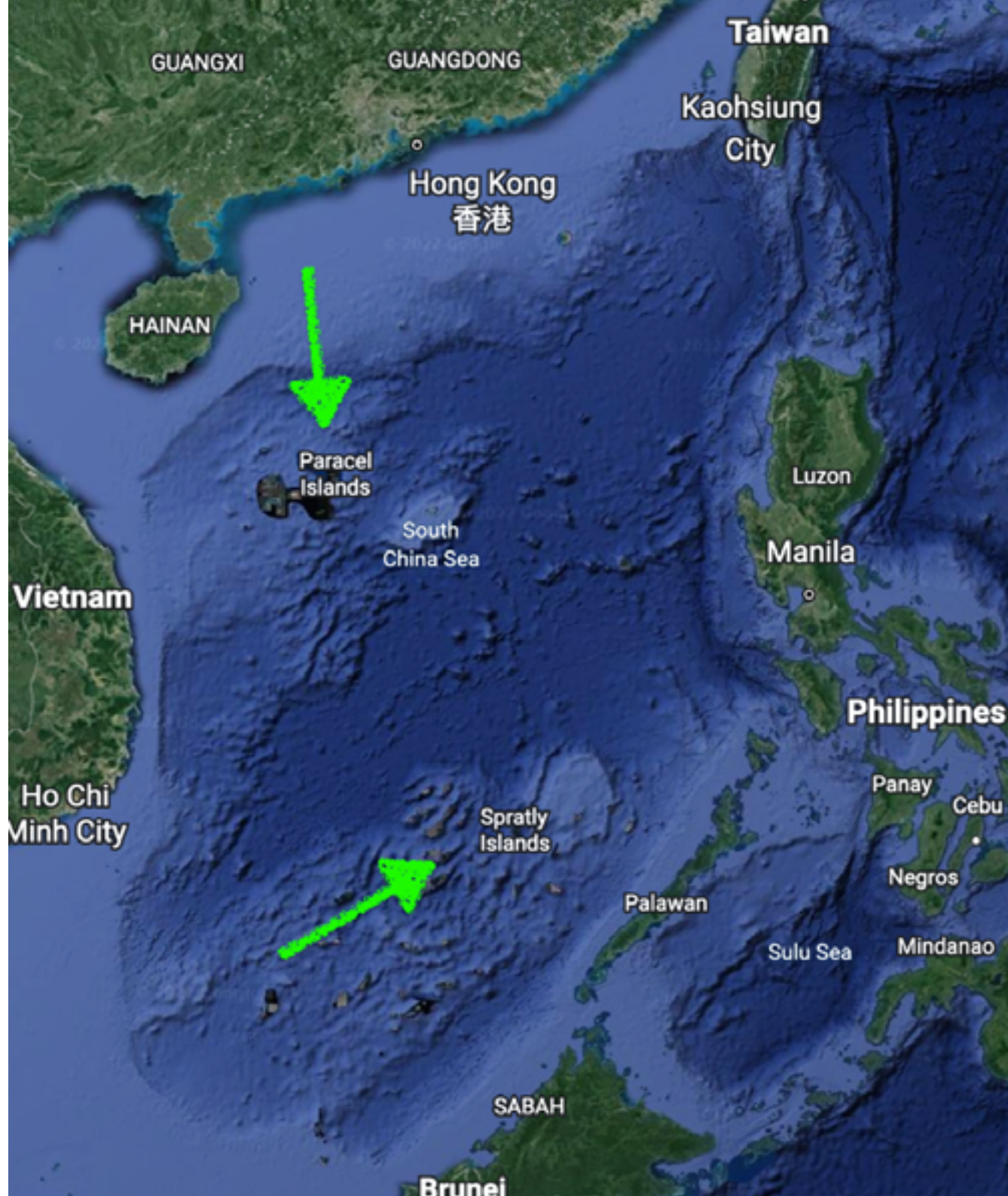
The 'One Belt, One Road' Initiative is likely the key to much of that ideal. This initiative is a massive infrastructure and foreign economic investment plan that when complete, will have cost billions and encompass 70% of the world's population. The initiative however has a trend of investing in militarily and politically strategic nations. Coercion, bribery and economic manipulation are cornerstones of its legacy since it began in 2013. But the speed, scope and success of the plan is putting the West on edge. In a blunder of international politics for the US and Australia, China recently gained a foothold in the Solomon Islands. It is doing in years what armies would struggle to achieve in decades, and it shows no sign of slowing down.

## **Drawing a line in the sand**

The two main chains of island in the South China Sea are the Paracel Islands in the north west, and the Spratly Islands in the south east. Although most islands in the South China Sea are not populated, they lay at the forefront of this complicated, geo-political, tit for tat. The primary claimants of the Islands, waters and seabeds are Vietnam, Malaysia, Brunei, Philippines, China, and Taiwan.

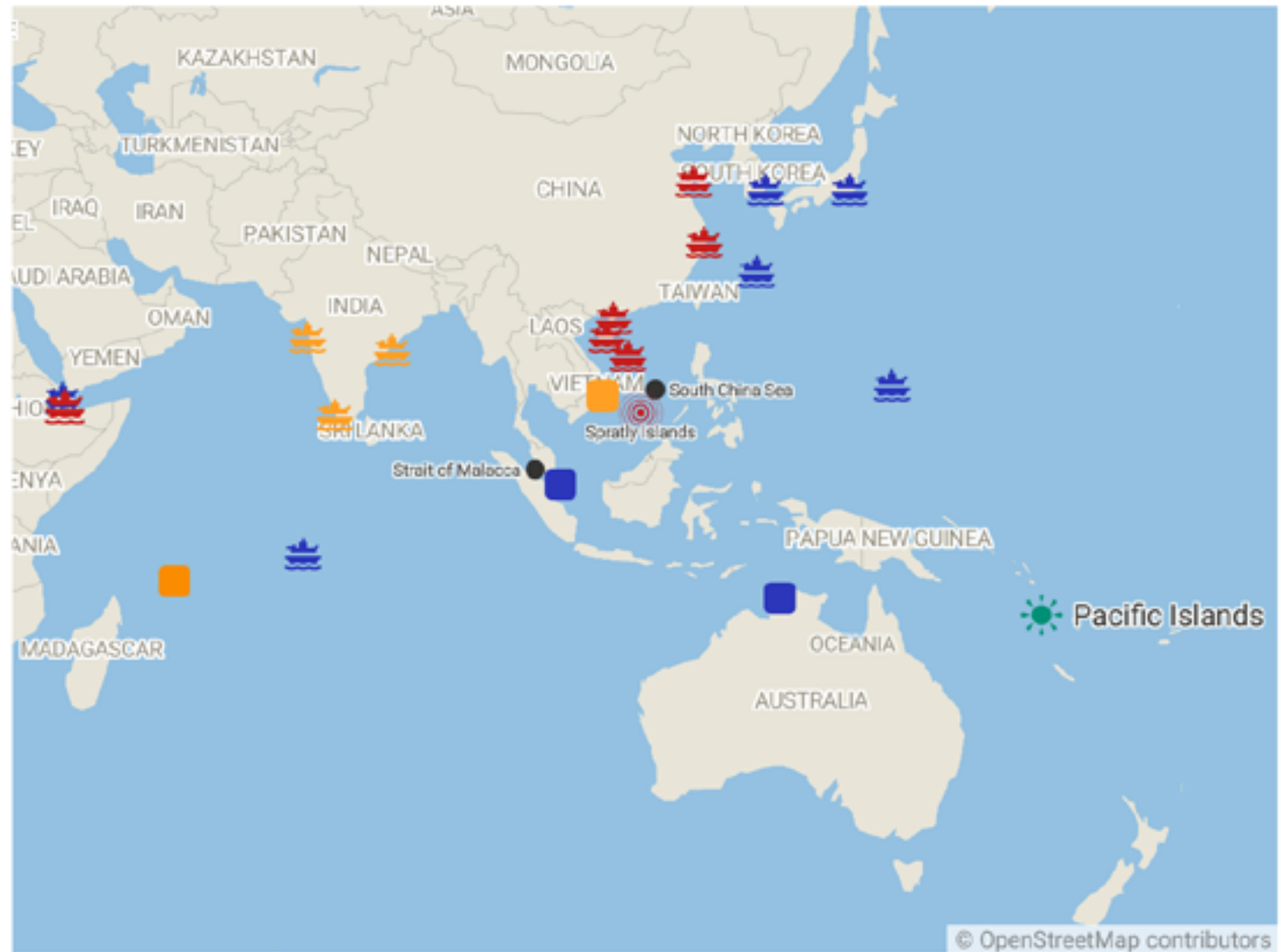
Vietnam claims a significant portion of the South China Sea, its claim based on the centuries where its islands and reefs have been used by Vietnamese fishermen. The islands were incorporated into Vietnam during the French colonial period. Vietnam formally handed its claim over its portion of the South China Sea to the UN in 2009.

Malaysia and Vietnam both have territorial claims that overlap at the Spratly Islands. Malaysia argues that several of the Spratly Islands were part of the Japanese empire prior to



*The Scarborough Shoal incident marked the first of many physical stand-offs between claimants*

# Military Bases in the Indo-Pacific



 China Military Base [under construction]

 US Military Base

 India Military Base

 China Naval Base

 US Naval Base

 India Naval Base

1945. When Japan renounced its claim at the end of WW2, Malaysia used the opportunity to annex some of the islands. Malaysia later joined Vietnam in claiming extensions to their exclusive economic zone following the UN Convention on the Laws of the Sea (UNCLOS). The exclusive economic zone is an area of the ocean that extends 200 nautical miles off the coast where the coastal country has jurisdiction over living and non-living resources. With this claim Malaysia extended its reach 350 nautical miles off shore using the continental shelf principle in UNCLOS.

Brunei's claims to the South China sea are very similar to Malaysia's and defining its borders has been an issue for the Sultanate for decades. Brunei claims a long piece of area up the Southern edge of the Spratly Islands. In addition, the Philippines claim that some of the islands consist of the Philippine archipelago which overlaps with each claim mentioned thus far.

The People's Republic of China claim most of the South China Sea as reflected in the nine-dash line. The line originated in the 1930s when the government of China began drafting its territories in the South China Sea. It was based on historical documents which argued that past Chinese dynasties considered much of East and Southeast Asia to be part of their sovereignty. Shortly after the nine-dash line was etched onto a map, China was facing a brutal civil war interrupted by a fervent invasion of Manchuria by the Empire of Japan in the lead up to WW2. Following Mao and the People's Liberation Army's victory in the Civil War the Communist People's Republic of China adopted the nine-dash line amongst similar displays of expansion and consolidation. Tibet, parts of what was Mongolia and the closely watched Xinjiang province, also known as East Turkestan, were snatched up into the Republic of China.

The Nationalists, led by deposed leader Chiang Kai Shek, fled to Taiwan. China claims the island, even more fervently than it does the Sea beneath it. Both might just be inexplicably linked in the eyes of the CCP.

Controlling the islands in the South China Sea is important for each claimant, some of which now have military bases on them. Even though there are only a small number of islands, rocks and reefs, in 2013, China began creating artificial islands capable of holding military bases and submarine ports. China's superiority over the other claimants has further heightened tensions.

The conflict is not limited to those states with their sea borders at play. India has become more present in the region for trade and security policy. With the strait of Malacca connecting maritime traffic between the Indian and Pacific Oceans, India has a vested interest in keeping the strait out of Chinese control. Since the Sino-Indian War of 1962 the Himalayan Border between the two regional powers have become tense. Violent skirmishes have occurred since 2020 in a proxy war of attrition. India's presence in the South China Sea opens up another point of tension for the nuclear powers. Japan isn't treading softly in the region either.

The US has been asserting its interests. For instance, since 2010, it has been building alliances in the region in an effort to contain Chinese pressure on other nations and stakeholders. It has also been regularly performing naval operations in the South China Sea, a show of force intended to deter other players, while simultaneously preparing for possible military confrontation in the region.



*Image top left: Subi Reef in the Spratly Islands was developed into an artificial island by China in 2015 where 200 military personnel are stationed. China illegally occupies and controls the Island that is also claimed by Taiwan and Vietnam.  
(Google Earth Image)*



*Image top right: Johnson Reef in the Spratly Islands was taken from Vietnam by China in 1988 where 64 Vietnamese soldiers died trying to defend their claim. It is now armed with landing pads and weapons systems.  
(Google Earth Image)*



*Image bottom: Hughes Reef in the Spratly Islands before its artificial expansion was only above water at low tide. It was occupied by China in 1988.  
(Google Earth Image)*



## US and China Indo-Pacific policy

The two policies related to the conflict in the Indo-Pacific arena are China's 'One Belt One Road' initiative and the US's response, the 'Free and Open Indo-Pacific'. China's policy centres around building a strong economic current through a tract of reliable, developing economic partners and back into the Chinese economy. The US's response centres around improving connectivity between Asia and Africa. These two policies reflect both sides' political vision where China is striving to 'enhance regional connectivity and embrace a brighter future' by providing loans and investments for infrastructure. US policy is characterised by building partnerships and 'promoting stability and prosperity' in the region.

## Tug of war over the Pacific... again

The details of the China-Solomon Islands security agreement signed in 2022 have not yet been published. However, the characteristics of security agreements contain military involvement, naval ships, military bases and exercises. Around the time of the deal allegations were reported of bribery to Solomon Islands MPs to change their allegiance from Taiwan to Beijing. Press freedoms in some Pacific countries have been deteriorating for a while. As it works to

secure the agreement, there have been attempts by China to restrict press conferences and media attention.

The Western countries fear this security agreement is China expanding its influence in the Pacific Ocean. The ABC reported that the civil unrest in the Solomon Islands in 2021 arose from the Solomon Islands' government switching alliance from Taiwan to Beijing. The political and geographic significance is that democratic Taiwan is backed by Western countries and exercises its sovereignty on the global stage while China claims Taiwan as its own. The deal is condemned by Australia and other Western governments who are worried about China establishing a military presence in the region and potentially threatening shipping lanes and communications in the Pacific Ocean.

Kiribati has followed suit and cut ties with Taiwan and restored relations with Beijing. Since then, China has drawn up plans to reopen and upgrade an airstrip that hosted military aircraft during WW2.

Once again, we are seeing small Pacific Island nations at the forefront of a conflict between global powers.

Local tensions and unresolved sovereignty issues are enabling the entry of foreign powers. Bougainville Island, the main Island of the Autonomous Region of Bougainville is part of Papua New Guinea. This is after the island failed in a bid to gain recognition from the United Nations as an independent nation in 1975. However, a 2019 referendum found that 98 percent of Bougainvilleans still want independence. Behind the scenes, China was alleged to have offered the possibly new nation US\$1 billion to fund the transition to independence with investment and infrastructure. When it came down to it, the US, Japan, and Australia helped plug the funding gap during the referendum and China did not contribute.

China has made it abundantly clear that it is looking to

expand its sphere of influence to the strategic area of the Pacific Islands, while Western countries seek to maintain their influence in the region. The Pacific was a major theatre of operations in WW2 and the scene of fierce and bloody battles between global powers. China's expansion in the South China Sea is reflected in its policy aspirations and military actions in the Pacific look to repeat the region's recent historical trend of being pawns in global power dynamics and the hotbed of a potentially devastating conflict.

# KIRIBATI ROBOT ENVIRONMENTALISTS

## *SafeGround & AI for Good*

*SafeGround's Pacific team explores how artificial intelligence (AI) is being used in beneficial ways for Pacific communities. At the same time, we address the challenges in form of bias, data quality, and sustainability we face when we are using AI. Our concern is that these problems will have serious implications if used in autonomous weapon systems. This comes while SafeGround works on the International Campaign to Ban Killer Robots, focusing on the ethically dubious military applications of the technology.*



## **Story by Elyse Cunningham**

This story looks at ocean research robots called Argo floats, which have been deployed in Kiribati and all over the world. Many Pacific Island nations have been listed on Argo's website as contributors to various float deployments including Cook Islands, Fiji, Marshall Islands, Micronesia, Niue, PNG, Samoa, Solomon Islands, Tuvalu and Vanuatu.

(Some) Autonomous Robots are Environmentalists. The budding relationship of Artificial Intelligence and Environmental Conservation efforts has been fruitful. SafeGround has heard of many instances where AI technology has been used for preserving our precious ocean life, including our previous story on [Fish Facial Recognition](#) in Palau.

In 2012, the United States National Oceanic and Atmospheric Administration [deployed thirteen robots](#) into the ocean near Kiribati to monitor the ocean and help scientists better understand El niño/ La niña weather patterns.



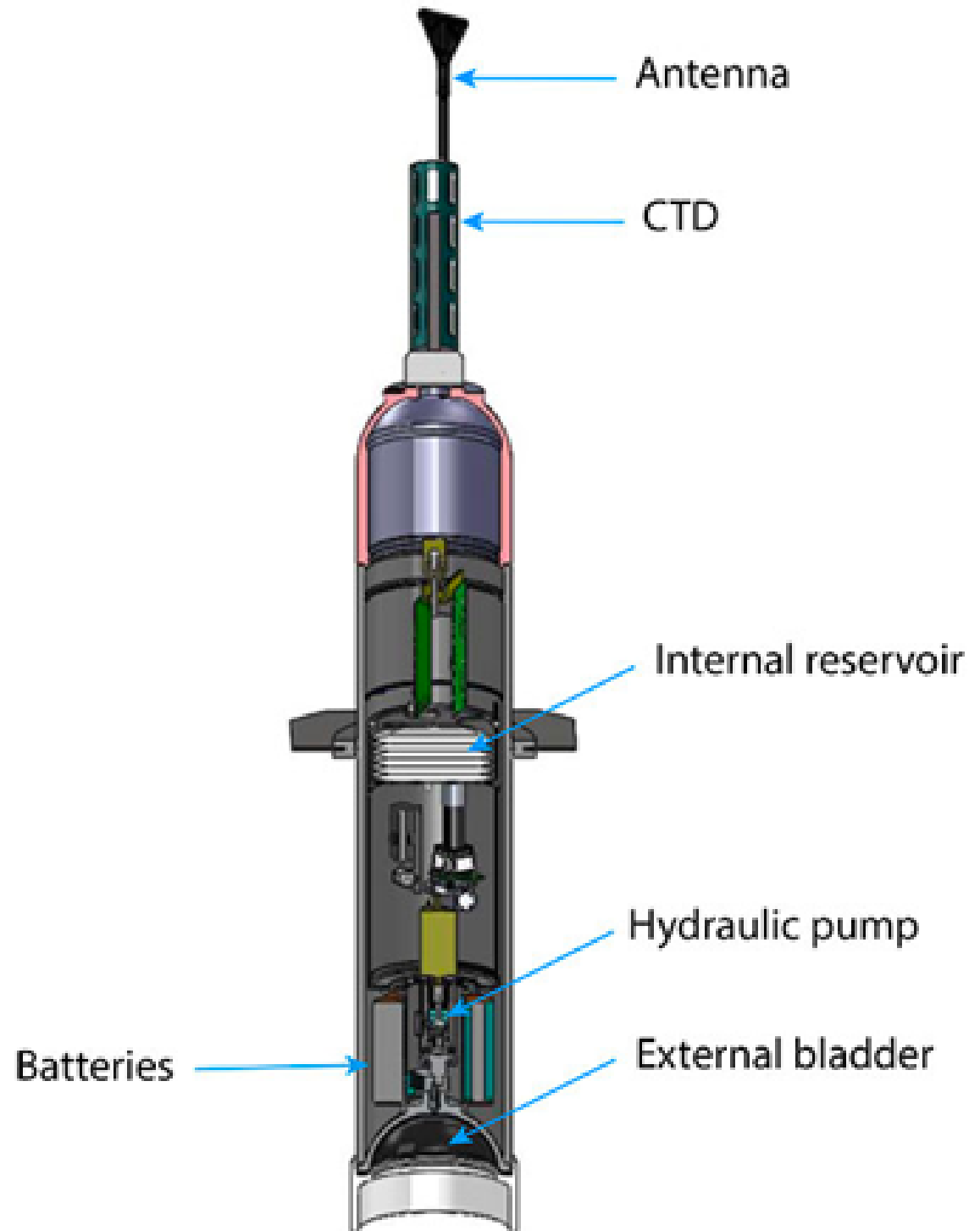
The robots in question are named '[Argo floats](#)' which were built by Argo, an international program that was developed out of the World Ocean Circulation Experiment (WOCE).

Each vessel has a small computer inside with a program that instructs how it behaves. It also contains an antenna to send and receive information from satellites, batteries, a hydraulic pump and an external bladder that allow it to control its buoyancy.

The robots are taken out to sea on a boat, dropped into the ocean, before drifting for 10 days at 1000 metre depths. They then descend to their profiling depth of 2000 metres, where they measure the [salinity, temperature, oxygen, nutrients and bio-optical parameters](#) of the ocean. Once they have collected the data, they pop back up to a human-friendly level and transmit the information via satellite back to the scientists. The cycle then repeats until the robot dies after about 4-5 years.

As of 1st June 2022, there were [3947 robots operating across the globe](#). According to their website, "Argo deployments began in 2000, and by November 2012, the millionth profile was collected with the 2 millionth profile collected in November 2018."

After a float dies, it sinks to the bottom of the ocean where it eventually corrodes, releasing trace amounts of chemical pollutants. The organisation [conducted a review](#) into the environmental impacts of its operations, taking the stance that it would cost a lot more to collect them. This is certainly a drawback to this technology as it does still contribute to pollution, despite its impact being less than the carbon emissions of a ship.



## Bias identified in Argo floats

Argo have experienced some challenges with their data over the years and have listed them under the [data FAQ page](#) on their website. Salinity bias is one of them. In some floats, a manufacturing error means that roughly 25% of real-time profiles (as of 2018) might detect a higher level of salinity than actually present.

Argo also told us that because their vessels have been collecting data for so long there is a lot to go through, more than humans can handle. To aid this, there are data scientists working on AI algorithms to sort through Argo's data for a range of purposes.

These include [machine learning to predict thermocline](#) in areas of the ocean, and [machine learning for quality control of the salinity sensors](#). In either of these cases, if the algorithm is unable to know that the initial data was incorrect, then its predictions could be ingrained with bias, and also be incorrect.

Part of the reason there is gender and racial bias in AI is that the data it is given comes from sources where there is an over/under-representation of different types of people.

If machines using AI contain an algorithm that misrepresents reality, there could be dire consequences.

An example of how this could be problematic with an Argo float is if it collected incorrect data which was then used for climate modelling. This could end up having a detrimental effect on the environment.

Bias, whether it be low-level sensor bias in a system like Argo floats, or high-level decision-making bias seen in AI, is one of the biggest problems that occurs in AI systems in general. This can be harmful to humans in many ways. Whether it be [AI in Amazon's hiring systems](#) showing bias against women, or a [Microsoft chatbot](#) programmed to learn

more about language over time, which ended up showing heavy racial bias based on what it had learned from twitter, AI needs to be carefully programmed so that these unintended consequences do not arise.

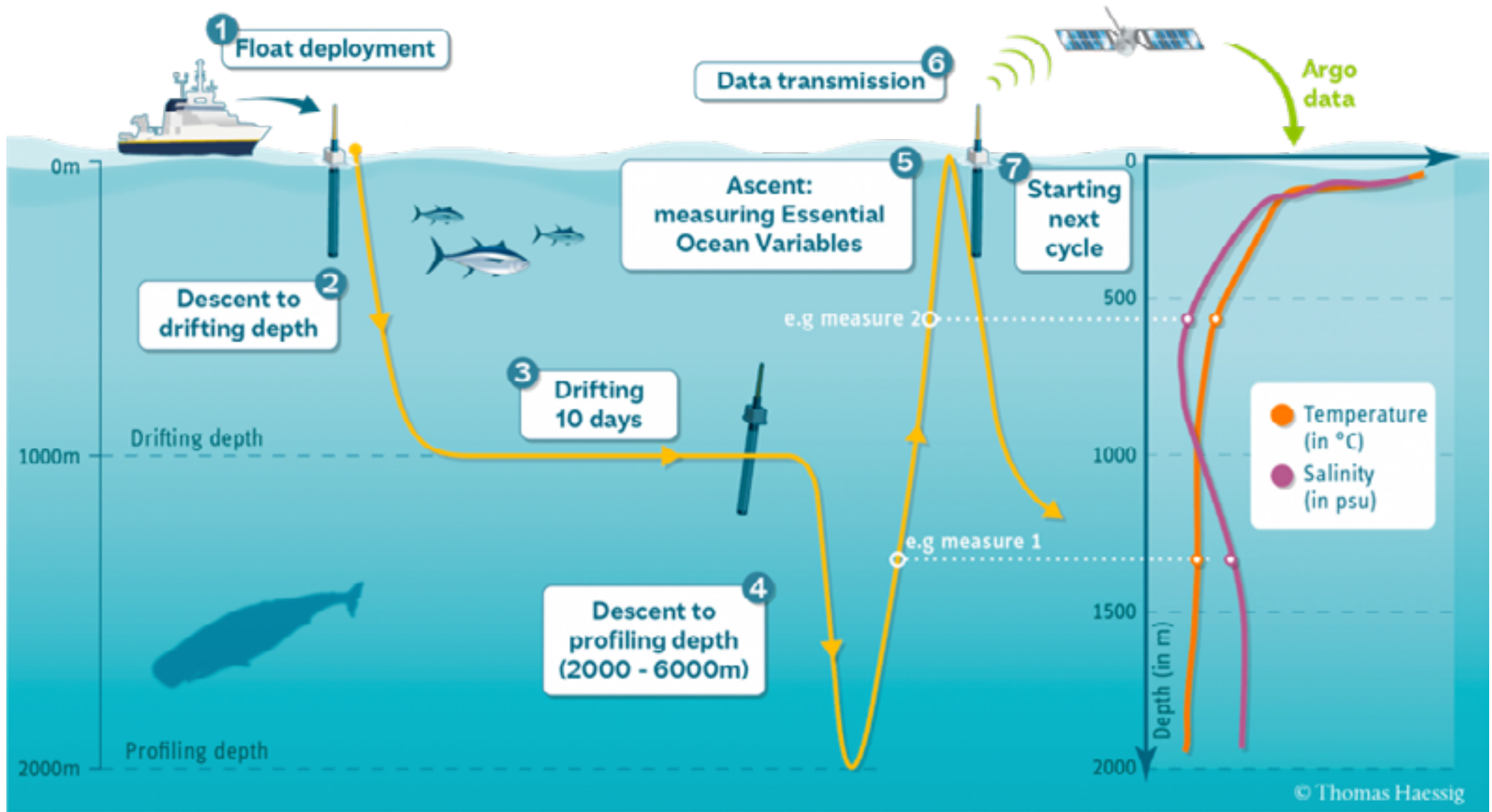
Other issues identified by Argo are **GPS system bugs**, which mean, for some robots, their measurements of location might not be accurate and take longer time to establish an exact location due to not utilising all available satellites.

## Other Challenges

Algorithms and AI in goods poses other challenges besides bias.

Argo has experienced that pressure data has been affected in several ways: by a **firmware bug**, or in some instances a **lack of a self-correcting mechanism** for measurements, meaning the data can contain errors, or even a **micro-leak of oil** which affects the data.

We asked how Argo safeguards the data from each cargo vessel and they explained that "...data are sent to satellite communication systems and we do not publish the individual transponder numbers anywhere so that they cannot be hacked and reprogrammed to different missions. Argo is a collaboration of many countries around the world and each one regards security a bit differently, but they all place a high priority on keeping the floats secure from hackers...The far majority of the time when a float has problems, it sinks. This means that it would be very difficult for someone to use it for unintended purposes. Also, the floats are very small compared to the ocean and finding one at the surface, without the aid of a current GPS fix is extremely unlikely."



## A Killer Robot Perspective

Artificial intelligence (AI) is being used for good in the Pacific and all over the world. SafeGround hopes that by sharing its pitfalls, will provide reasons why they should be regulated and banned in autonomous weapons. This is in order to avoid serious consequences. Our main concern is that the technology is permeated with issues that can give autonomous weapons detrimental reach.

Bias comes in all forms. At the moment the main focus have been on racial and gender bias because existing inequalities are being embedded into algorithms both due to the developers employed and the data sets used for training the machines. This causes flaws in the algorithms used. In addition we don't know how a number of other biases will impact people, land and sea if used in autonomous weapons. Failure by machines to detect and predict the battleground, and who to hunt, and who to kill, will have a huge impact in the fog of war.

In drone warfare, incorrect targeting is one of the common problems. A swarm of autonomous weapons with incorrect data about their location, could easily miss their target and harm many innocent people.

Though they have probably not been used yet, autonomous underwater weapons are being created. Russia is currently building a nuclear underwater autonomous submarine named 'Poseidon'. It is fired by an in-built nuclear reactor meaning it could reach intercontinental distances. Once ready, it would be [able to reach depths of around 1000m](#), and travel at 70 knots, making it faster than the torpedoes that exist currently. It contains a nuclear warhead as its weapon, a possibly harrowing duet.

Russia has threatened that it would be able to detonate the nuclear bomb underwater and create a tidal wave large enough to wipe out the UK and Ireland. If it could do that much damage to the UK and Ireland, imagine what it could do to small Pacific Island nations. Imagine if a weapon like this had been ingrained with an AI algorithm that was biased in some way; could it affect who the robot chooses to target?

SafeGround and the Stop Killer Robots Campaign are calling on Pacific Island countries, Australia, and the public to join us in creating a legally binding treaty to regulate and ban fully autonomous weapons. Though there are many examples of AI technology being used for good all around the world, we must not overlook the potential for harm if we allow AI technologies to be used in autonomous weapons. Our goal is to ensure a safe future for the Pacific and the world, free of Killer Robots.



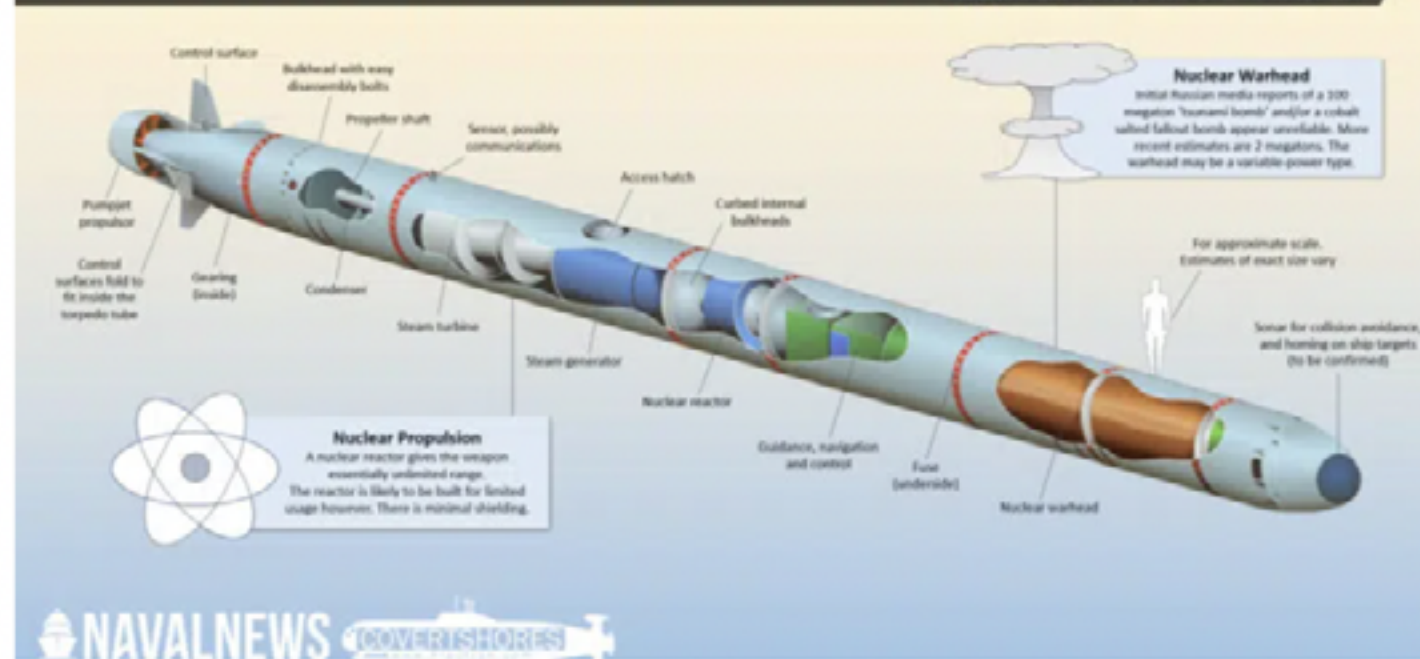
Home » News » Russia's New 'Poseidon' Super-Weapon: What You Need To Know



## POSEIDON Intercontinental Nuclear-Powered Nuclear-Armed Autonomous Torpedo

Зв39 'Poseidon' (Посейдон) / 'Status-6' NATO: KANYON  
 Provisional illustration based on analysis of open sources

© I. Sulfon, twitter: @CovertShores Website: www.covertshores.com



*Cutaway illustration of Poseidon, based on analysis of images released by Russia. The nuclear reactor heats water to steam which then drives a steam turbine. This is similar to nuclear submarines - Naval News and Covert Shores*

# MACHINE LEARNING AND MARGINALISED PEOPLE

Story by Amy Brey

When you exit any train station in China, you will be met with the gaze of at least 50 security cameras that create a virtual map of your face. The footage of the cameras will then match this map against information in the police database. If the system finds indicators for criminal activity it will immediately notify nearby police officers. In [Fuzhou](#) and [Shenzhen](#), authorities have gone so far as publishing the names of jaywalkers in local media and even sending the names to their employers.

The pillorying of Chinese citizens is made possible because of mass citizen surveillance. With 2.58 million cameras, the sprawling southwest city of Chongqing is watching the movements of its citizens more closely than anywhere else in the world, including Beijing, Shanghai, and tech hub Shenzhen. [According to](#) China-expert Kai Strittmatter the government's all-seeing eye aims to 'internalise control'. Similar cases of panoptic surveillance and algorithmic facial recognition are increasingly becoming the norm

internationally as the justice system has long been the happy bedfellow of Artificial Intelligence (AI). However, in the aftermath of such rapid technological developments, it becomes painstakingly clear that it is minority groups who are paying the price for increased digital autonomy.

In their simplest form, [risk assessment tools](#) are questionnaires that assign points to offenders based on anything from demographic factors, family background and criminal history. The resulting scores are calculated by an algorithm and based on statistical probabilities derived from previous offenders' behaviour. A low score designates an offender as "low risk" and could result in lower bail, less prison time or less restrictive probation or parole conditions, a high score can lead to tougher sentences or tighter monitoring. Scores like these are increasingly common in courtrooms across the U.S. In Arizona, Colorado, Delaware, Kentucky, Louisiana, Oklahoma, Virginia, Washington and Wisconsin, the results of such assessments are given to judges during criminal sentencing.







Risk predicting software perpetuates bias in the justice system as it operates on a system based on racial and gender stereotypes. Recent studies have demonstrated that machine learning algorithms can discriminate based on classifications such as race and gender. For example, scientific [research](#) by computer scientists Joy Buolamwini and Timnit Gebru found that classifiers such as race, skin tone, and gender are significant when it comes to facial recognition performance. Their research revealed that facial recognition software recognizes male faces far more accurately than female faces. For darker-skinned people, however, the error rates were over 19%. The systems performed particularly badly when presented with the intersection of race and gender, evidenced by a 34.4% error margin when trying to recognize dark-skinned women. Despite the alarming error rates in these systems, we see an unprecedented adoption of them commercially. This raises the questions what impact it will have if law enforcement and national security institutions become increasingly reliant on them. As we now see in China, such dystopia does not only exist in fiction.

In this regard, AI not only embodies the values and beliefs of the society or individuals that produce them, but acts to amplify these biases. Machine learning algorithms, like Google, collect the most frequently submitted entries and therefore reflect statistically popular racist sentiments. This is exemplified by the discovery of MBA student Rosalia, who [found](#) that googling 'unprofessional hairstyles for work' yielded images of mainly Black women with Afro-Caribbean hair. Conversely, when she used the search term 'professional hair', images of coiffed white women appeared. This web search is only scraping the surface of how algorithms are embedding racist and gender-blind principles in the world of work.

Another concerning example of data-driven discrimination

is predictive policing, which uses crime statistics to identify “high crime” areas and then subjects these to higher and often more aggressive levels of policing in the UK. These areas are usually of lower socioeconomic status and are mostly stuck in an incremental cycle of poverty. When these neighbourhoods are routinely exposed to racially discriminatory practices by the police force, more people of colour are arrested and flagged as “persons of interest”. In London, a database called the ‘Gangs Matrix’ is used to store information about suspected gang members. As of October 2017, the year Amnesty International launched the report ‘[Trapped in the Matrix](#)’, 87% of people registered in the Matrix were from Black, Asian and minority backgrounds.

There is growing evidence that racial biases in algorithms can have very real negative impacts and unintentionally entrench, rather than ameliorate existing inequalities as algorithms do not understand social or historical contexts. The current union between justice systems and AI does not bode well for Indigenous people around the world. This is particularly the case in Australia, where a First Nations teenage male is more likely to go to [jail](#) than go to university.

Aboriginal and Torres Strait Islander peoples are among the most disadvantaged people in Australia. They have significantly higher than average rates of poverty, preventable disease and are over represented in the prison system. While there are several reasons for this, many are related to the aftermath of colonisation including the ongoing intergenerational impacts of systematic marginalisation.

When it comes to recent developments like facial recognition systems, risk prediction software, algorithms and automated machine decision-making, minority groups are deprived of their benefits and may be subjected to their consequences. As a society, we have a choice about the kind of future we want, is it one in which biased-AI wields the sceptre or is it one in which humans stay in control over life-changing legal decisions? Technology should be used to empower all people, not to reduce us to stereotypes.





# DETENTION AND DISRUPTION

Story and photos by Rhett Kleine and Jesse Grey

The Refugee crisis has been ongoing in Australia for decades, with a mandatory immigration policy being introduced in 1992 that required all non-citizens without a valid visa to be detained until one is granted or they leave the country.

Melbourne's Park Hotel was a place of detention for medivac refugees, brought from offshore detention to Australia seeking medical treatment. The Refugee Council of Australia shows that out of the 192 refugees who had been promised care, only 4 received treatment, with the rest left untreated in hotel confinement. These refugees have been kept in

indefinite detention for years and refused relocation back to their families or residency within the Australian community.

A movement grew as a response to the treatment of asylum seekers.

The movement in Brisbane was largely community-based and to an extent, effective, with a blockade being set up around the Southern Cross Motel, a makeshift detention centre. Here were 120 of the medevac men, known as the KP120, being held. The blockade sought to stop any moves made to send these refugees back to offshore detention.









The blockade was fervent and popular for some time, there were protesters on call around the clock to respond to any attempts at deporting the refugees. Groups like the Refugee Action Committee, the CMFEU and Extinction Rebellion, among others, played roles in organisation and logistics, but the movement was largely community based. Local shops offered power and supplies to the protesters, and when one of the detained men's wife who was living in the community went to hospital, it was the protesters that looked after their young son.

The movement in Melbourne was less community based. The groups at play here were mainly the Refugee Action Committee, Amnesty International and the Socialist Alliance, and they had problems finding common ground. The Refugee Action Committee used volunteer lawyers who, despite consistent legislative hurdles, were trying to find legal ways to help the refugees.

Both movements were protesting, and law enforcement were responding. The protesters in Brisbane, in particular, saw a heavy-handed response from police, where multiple clashes and arrests were recorded at both the marches and the blockades. Despite the passion of the disruption, police and border agents were able to deport a number of the medevac refugees. Similar outcomes took place in Melbourne.

The Australian Government uses various legislation to provide a framework for immigration detention. Each set of regulations brings its own set of problems for refugee organisations to overcome as well as having to deal with the inefficiency of Australian Home Affairs. The refugees in the Park Hotel have lived in very poor conditions; being deprived of basic human rights, facing indefinite imprisonment, and denied interaction with family, and access to fresh air beyond the confines of their rooms.

The arrival of COVID-19 and the Park Hotel's lack of proper ventilation, meant the already sick refugees were susceptible to the spread of COVID. Coupled with the uncertainty of their release dates and prison-like living conditions, some who have been detained for over eight years, described their existence as torture. Even the calls of then Australian Human Rights Commissioner, Ed Santow, to release the men during the pandemic were ignored by the Australian Government.

As 2021 ground to a close, a few young lawyers took up the cause. They were able to find legislative blind spots which allowed them to advocate for and secure the release of a majority of the medevac refugees. While the Murugappan's have been allowed to return home to Biloela, refugees remain a dubious topic in Australia. One that still remains within the confines of an issue that has never proven to be much more than political in nature.

Melbourne's Park Hotel and Brisbane's Kangaroo Point Central Hotel and Apartments have slowly released their asylum seekers, yet according to the Refugee Council of Australia, there still remains 1534 people left in detention centres around the country.















# SILK FROM THE SEWER

Story by Isabella Porras

*An Example of Sustainability from India's Silk Smiths.*

Wastewater, is a common enough sight, dripping and swirling through storm drains and snaking its way around the bustling city of Bengaluru in India. Yet the 1400 million litres of wastewater produced each day is rich with untapped potential for many in a city rushing towards a water crisis.

Nestled on the edge of the city lies the small but vibrant town of Vijayapura. Markets alive with a chorus of sound and colour, a town persevering amid the mounting pressure of water scarcity. The farmers of Vijayapura have long felt the tightening grip of climate change upon them, as temperatures rise and rain fails to fall.

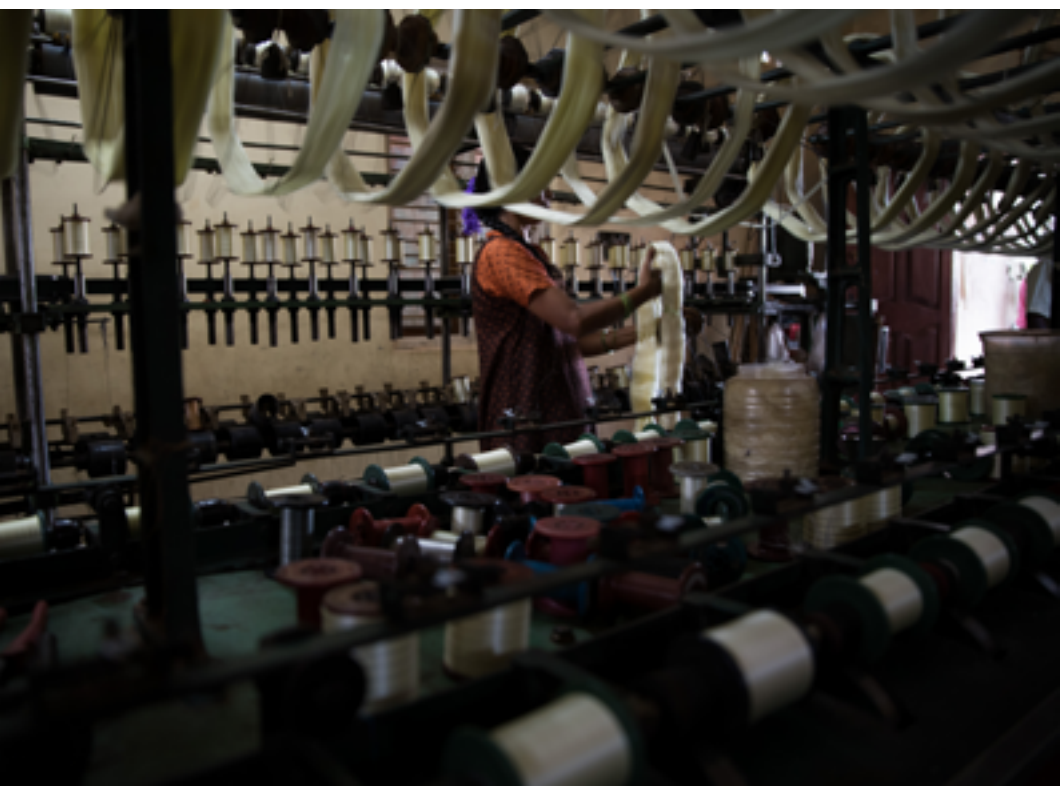
Although not all hope is lost, mulberry farmer Muniraju K.V has been quietly weaving a life for himself with wastewater. He has recognised its power to provide a sustainable solution to the water woes of his city and ensure that his family is left with a lasting legacy.

Two hours out of Bengaluru, as the city becomes distant along the stretch of highway, scattered fields of farmland fill the landscape. In a country where more than 40% of the workforce is reliant on agriculture, the ever-looming issue of climate change is a very real concern.

Muniraju has spent the last fifteen years diverting wastewater to his farm and has emerged from years of hardship as a pioneer in his town. He is a master of his craft, slowly tending to the rich green leaves of mulberry which after an intricate process create the flowing silk sarees of India.

Karnataka has long been India's largest creator of silk, its threads dating back hundreds of years, providing livelihoods for many. As water continually becomes scarce it has proven difficult to persevere as a farmer. Yet the rich tradition of cultivating and growing mulberry silk can still be found, hidden amongst the winding alleyways of Muniraju's town.







“I have been on this farm since I was a child, and now I am forty-five. After our borewell ran dry I was forced to work on someone else’s land for over five years.” Says Muniraju.

Though enduring those years of adversity, he has persevered, turning to wastewater as an answer to his struggles. Nearly twenty years ago growing ragi and beetroot were enough to sustain his family. Yet amidst intense changes in India’s climate and severe unequal water distribution in Bengaluru, Muniraju was forced to leave all that behind.

Rapid urbanisation in a constantly morphing city has meant those on the frayed edges have been neglected. Despite its intricate waterways, the city of Bengaluru has yet to extend its reach to those living on the periphery.

Vishwanath Srikantaiah, a water conservation expert, civil engineer and urban planner, notes that unfair distribution of water is the main issue for those on the edge. With 75% of the city able to instantly receive piped water, the other 25% is left struggling day to day.

As he wanders through his sprawling fields of mulberry, running his hands through the leaves, Muniraju remembers the years spent as a landless labourer. The endless depths of the borewell had sucked his land dry and water was nowhere to be found. Five long years he worked in the soil of others, to sustain his small family.

Yet Muniraju persisted and during the rainy season the gushing wastewater spilling onto his farm sparked an idea. Cleverly diverting the sewage into two low pits in the earth, the swirling black water swept through his land, giving life to his thirsty crops. He had stumbled upon a simple solution from an overflow problem in Bengaluru.

The pressure of each new day and the scarcity of water will no longer be as large of an issue for farmers turning to non-edible crops. Vishwanath, also a friend of Muniraju, spoke

of his innovative process of utilising wastewater to grow mulberry.

*“He doesn’t require an eco- STP (sewage treatment plant) there is no process needed, you take raw wastewater and stock it in a nearby pond and then you distribute it to the nearby fields to grow mulberry. It’s shit to silk. By shifting from edible to non-edible crops Muniraju can show the way for many farmers as to how to use the city’s wastewater, treated or untreated in a productive fashion.”*

The sheer enormity of wastewater in India has reached a critical point. Nearly 62 billion litres of sewage is churn throughout the country and only 37% of this is being treated. Many people in the city can learn from the resilience of farmers like Muniraju and his simple cycle of sustainability.

Led through the winding fields of mulberry, Muniraju remarks on the high quality of his plants soaking the nutrients from the sewage. He motions to another farm adjacent to his own, where fields of mulberry also grow. Yet the plants from this land are fed from the depths of a borewell.

A striking difference can be seen, Muniraju’s own crops, a deep green, stand tall against the sky. Whereas his fellow farmer’s mulberry is shorter and the leaves much smaller in size. These immediate differences are not the only factors confirming the quality of sewage silk; the silkworms who feast on Muniraju’s leaves thrive on his mulberry, and confirm the high quality of the lush plants.

The International Journal of Chemical Studies reported in 2018 that silkworm cocoon yield was increased by plants irrigated by wastewater. This is due to the higher amounts of phosphorus and potassium in the soil which produce a higher quality of leaves.

Although Muniraju has been successful in his determination to push through water scarcity it has not come without its

challenges. The steady increase in the climate's temperature has been evident, and under Muniraju's attentive eyes he has felt the slow pressure build. Years ago, he could have watered his crops every ten days. Yet with the parched soil increasing every year he now has to tend to his mulberry every few days for their survival.

Tied down by policy and procedure, the government have been on the fence with agricultural uses of wastewater. This has not cowed Muniraju, who cleverly is working within the World Health Organisation's guidelines for wastewater management.

"There is a lot of backlash from researchers and public health organisations who are caught up in policies that say it is pollution and dangerous, rather than seeing the benefits. But the WHO sanitation safety plan gives Muniraju legal ability to fund his farm the way he has." Vishwanath commented.

The shift from edible to non-edible crops such as mulberry has woven successful threads of opportunities for Muniraju. He has then shared his knowledge with his fellow agriculturists. Muniraju is often called to other farmers to lend his skills and guide them to sustainably harness sewerage water.

"Some of the farmers in Vijayapura have taken my advice and started growing mulberry and now are making a comfortable living, despite the challenges." Muniraju said.

Not only has Muniraju secured his family's future with his innovative sewage silk, but it has sustained jobs for a string of families in his town, who can now continue to produce raw silk for the Indian market.

Muniraju's resourceful use of wastewater has not only provided Vijayapura with a sustainable waste management system, but each stage of the intricate silk story has been tended to by a local family. From Muniraju's mulberry to the silkworm's

delicate transformation to cocoons and finally the reeling of the raw silk ready to be woven into sarees.

Hardly two kilometres from his farm, a small family of sericulturists is nestled on the edges of Vijayapura. Quietly ushered into dark rooms of the silkworms, Muniraju looks proudly on the squirming ivory worms, hungrily feeding on his mulberry. Stacked high to the ceiling are bamboo beds filled with a rich mix of green leaves and white wriggling bodies. The soft chewing of the worms reverberates around the room like the patter of rainfall as they enjoy their meal.

The silkworms are raised for twenty-eight days, then they are finally ready to complete their journey to silk. Baskets brimming with silkworms are placed beside large bamboo mounts known as chandrangi. The worms, fat with mulberry, are scattered round the bamboo in deft movements where they will then form their delicate silk cocoons.

The silk cocoons are harvested and ready for the next stage – reeling. Hidden amongst the alleyways of Vijayapura, led by the deafening mechanical clacking of silk reels, Muniraju ducks into the small family run business. Rows of coarse yellow silk wheels are in constant motion. The members of the family who run the reeling business move through the aisles with precision, quick to notice when a thread is loose. Muniraju's sewage mulberry, in its simple yet clever beginnings have sustained these small family businesses on the edge of Bengaluru.

Finally, the silk has been wound tightly into golden reels, ready to be sold and woven into a silk sari. Handlooms have slowly faded out of popularity, with factories in the city preferring the rapid movements of the power loom. The act of the raw silk, threaded into a sari is mesmerising, as the rhythmic clanging of the metal looms combine to create a vibrant silk pattern.

From humble beginnings of wastewater mulberry, to the families who tend to the delicate silkworms and the reeling of raw silk, and finally to the sari weavers. A silken magic from sewage has been created. This culmination of the silk trail of Vijayapura has provided both a livelihood for family businesses and a sustainable solution to wastewater management.

Muniraju's utilisation of wastewater is just one story of many farmers in Bengaluru who have fought back against rising water scarcity, and show that there is hope yet for India's farmers.



# THE WATER STORY

The Water Story is an evidence-based environment journalism project focusing on water. They work towards delivering positive social change in water security, through meaningful solutions-based and people-focussed cross disciplinary communication that brings together science, business and the humanities. It builds on the idea that innovative, engaging and meaningful communication is central to positive social change and by extension water security.

They are committed to developing communications intelligence that stimulates public awareness on the global water crisis, by developing capacity among emerging journalists on how to tell compelling and engaging science and solutions-based narratives of hope and inspiration.

At its core the Water Story triangulates three key ideas – tangible communications outcomes through content production; the use of such content production in real and virtual learning and production spaces to facilitate water education; and the development of communications intelligence on how best to reach disparate and diverse audiences, to facilitate positive social change through a critical pedagogy of public education.

The Water Story based at Griffith University, Queensland

Australia has worked with staff and students from the Mumbai University and Xavier's Institute of Communication in Mumbai, India; Christ University Bengaluru, India; and the water experts from the Indian Institute of Science's Divecha Centre for Climate Change and the Griffith based International Secretariat of the Sustainable Water Future Program, the Rivers Institute and the International Water Centre.

<https://thewaterstory.com.au/about/>





# SHRAPNEL SUCCESSION

## Story by Rhett Kleine

The conflict between Russia and Ukraine was first sparked in 2014. Pro-EU protesters occupied the Maidan in the face of overwhelming force and authoritative pressures, later forcing then President Viktor Yanukovich to resign. Putin's thumb slipped from the pulse of the former Soviet Republic as Ukraine, economically, politically and socially, took a further step toward the Liberal Democracies of Europe and the West. In response, Russia annexed Crimea and started arming Pro-Russian separatists within the Donbas regions of Luhansk and Donetsk.

More recently in February 2022, Russia invaded Ukraine, a bloody escalation of the war that began in 2014. This ongoing conflict has caused Europe's largest refugee crisis since World War 2, with more than 6.3 million Ukrainians fleeing the country and a third of the population displaced.

US Undersecretary of Defense for Policy Colin Kahl reported that the number of Russian soldiers killed or wounded in the recent fighting is somewhere between 70,000

and 80,000, an immense cost for a war that has proven to be little more than chaos for the invaders.

The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines (commonly known as the Ottawa Treaty) banned the use of landmines in armed conflict. The disproportionate civilian death toll caused, and the contamination of land for years afterward heralded an international response, an almost universal signing of the 1997 treaty.

But Russia and other military superpowers failed to sign the treaty. In 2018, the International Campaign to Ban Landmines reported Russia's stockpile at 26 million mines. More than the stockpiles of other non-signatories- the US, China, and India- combined.

Since the start of the conflict in the Donbas, Ukraine's Ministry of Defence has reported over 7,000 Square kilometres of Government controlled land and 9,000 of Rebel held areas were mined in the Donbas.

In 2020 alone, before direct Russian aggression, 55 deaths





were recorded to have been caused by landmines or other ERW's (explosive remnants of war) in Eastern Ukraine. Since the start of the 2014 war, The Halo Trust, a Scottish mine-clearance organisation reports over 1,796 casualties in eastern Ukraine. Of that number 238 were civilian deaths, with both sides accusing the other of placing landmines.

Ukraine is one of the most heavily mined countries in the world with the main concentration of these mines in Eastern Ukraine. Ranking fifth for landmine casualties the UN has reported that over two million people in the region are exposed to contaminated land. Efforts have been undertaken to clear much of it, but with an unprecedented escalation in conflict due to the recent war, the concern is that despite the outcome, civilians will be living with the remnants of the conflict for generations to come.

In the week before the Kremlin signalled the apparent de-escalation and re-focusing of their efforts toward Donbas, Human Rights Watch came out with reports of Russia utilising anti-personnel landmines throughout combat zones, The Russian's claimed these were 'smart mines' that only targeted military targets. However, Human Rights Watch and other international observers have since reported that the Russian military had laid landmines in residential and agricultural areas, some were responsive to seismic activity, others were retrofitted anti-vehicle mines, others were just set on a timer.

The legacy of this war is already one that will likely taint the lives of Ukrainians for generations. Anywhere it goes from here that isn't an immediate ceasefire, is likely to only dig that wound deeper.