Building Australia's Defence

Redback Infantry Fighting Vehicle

Originally set out to get 1,100 in 2004.

Now getting 129.

That is one for each 209,000 Australians.

Not enough.

Name Your Enemy: China

Edward Luttwak:

Deluded over the centuries by their great material superiority over the nomads, mountaineers, and jungle dwellers who lived around them, educated Chinese became convinced—and still are—that all foreigners are stupid, naïve, greedy, and easily deceived, and that all it takes to defeat them in war are clever tricks.

Luttwak had coined the term 'great state autism' to describe China. China has the mentality of an autistic child who sees the world as they want to see it and can't comprehend how others think.

China has a lot of structural problems that make it a fragile state and even potentially a future failed state.

Figure 1 Map of National Shame [Hong Maoxi (洪懋熙), eds., *The New Chinese Map*, authorised by Ministry of Interior for Elementary School (内政部審定小学適用最新中国地図), Chongqing, Dongfang Yudi Xueshe (東方輿地学社, 1938)].

Primitive societies dream of empire.

Map from a Nationalist primary school textbook of 1938

86 years later – the map hasn't changed much

At their last meeting, Xi Jinping asked Putin to hand Vladivostok to China.

The problem of trying to communicate in a symbolic language - from Xi Jinping's speech at the 19th Party Congress:

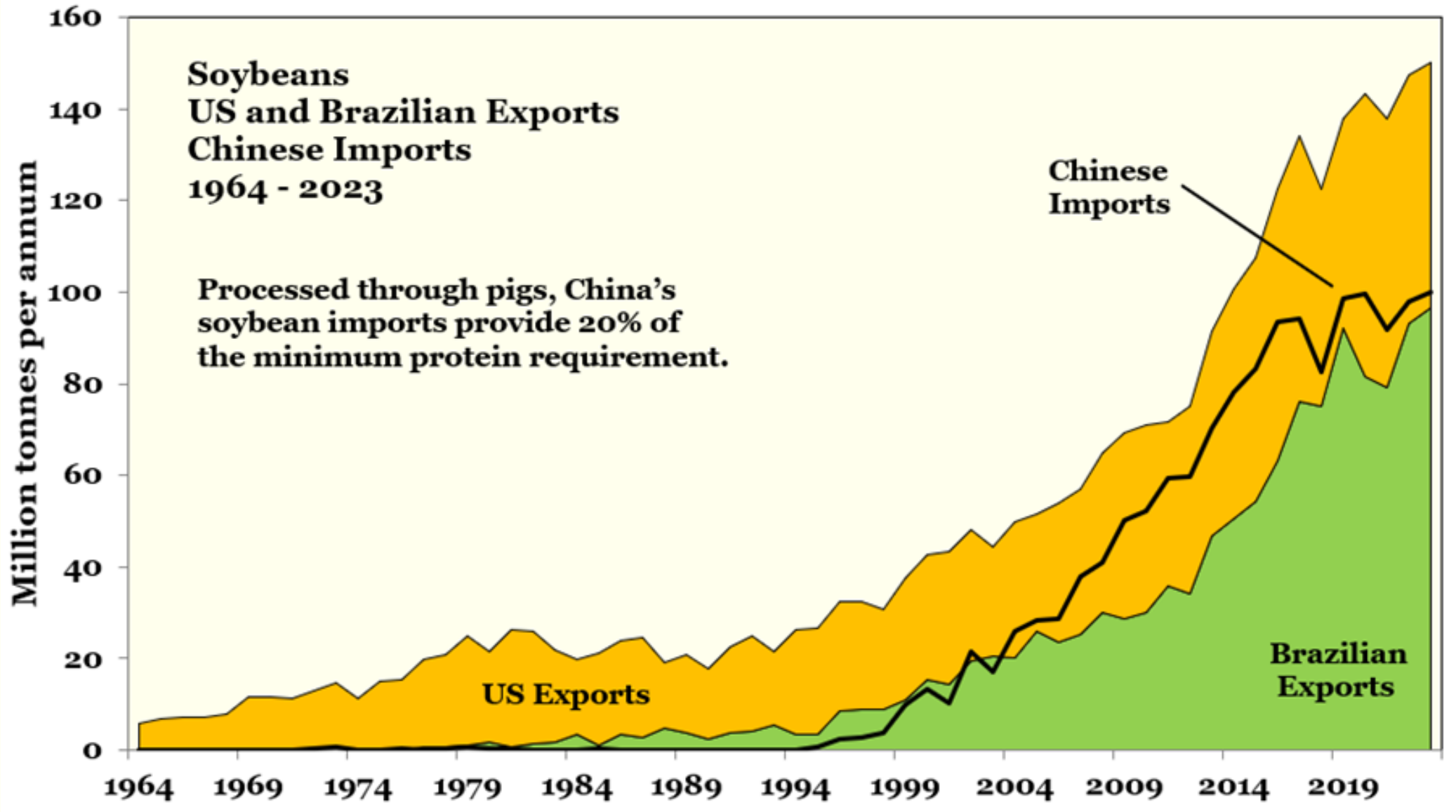
> ***We have committed to "examining ourselves in the mirror, tidying our attire, taking a bath, and treating our ailments," launched activities to see members command and act on the Party's mass line, and initiated a campaign for the observance of the Three Stricts and Three Earnests.***
>
> ***We have taken firm action to "take out tigers," "swat flies," and "hunt down foxes."***

His most foreboding words were near the end:

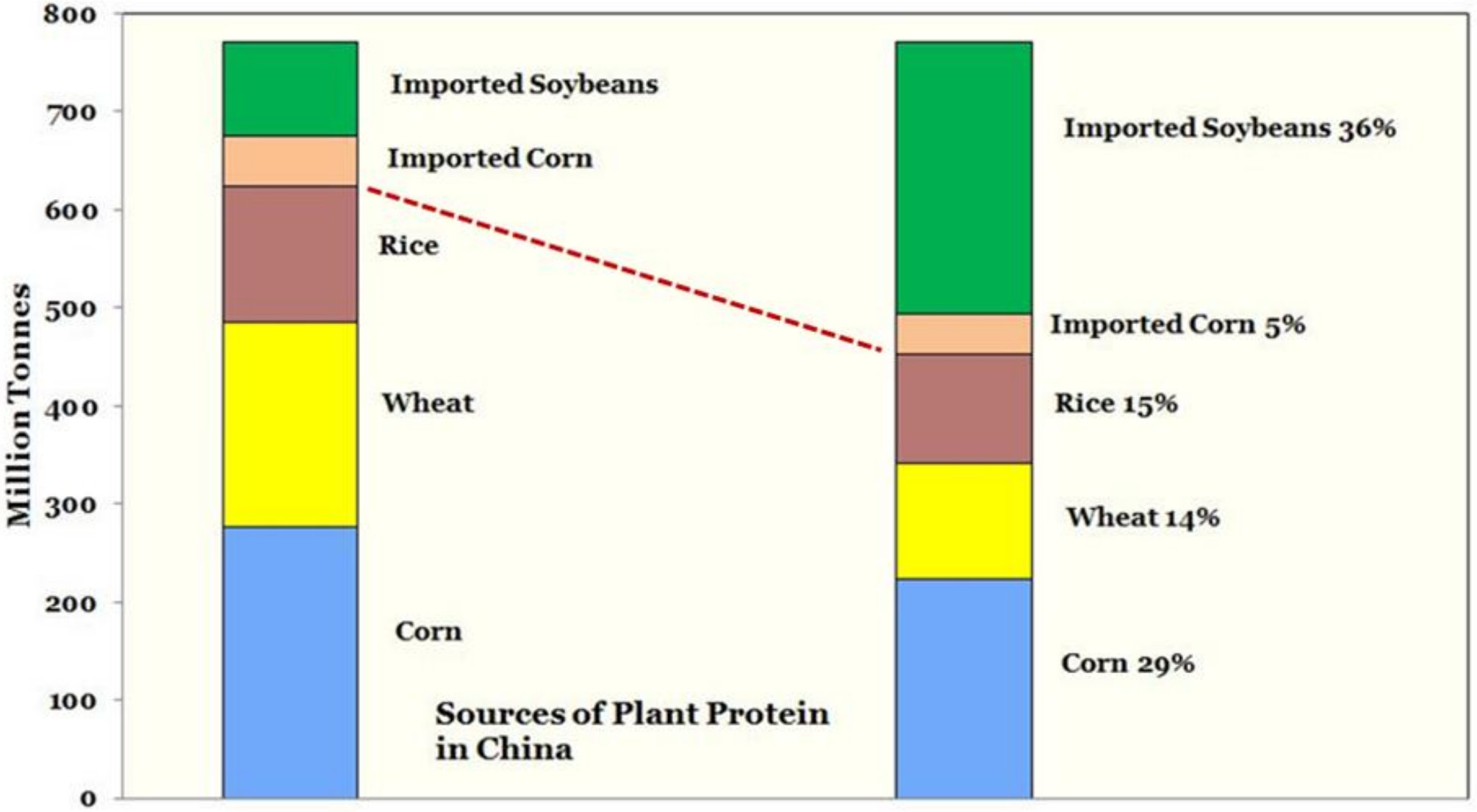
> ***The wheels of history roll on; the tides of the times are vast and mighty. History looks kindly on those with resolve, with drive and ambition, and with plenty of guts; it won't wait for the hesitant, the apathetic, or those shy of a challenge*.**

Xi intends to provide the ambition that will get some history written in other people's blood.

He wants to be remembered as the new Yellow Emperor – Huangdi of 2704 BC.



China hoovers up the World's soybean exports – to make into pigs and chickens.



A country that imports 41% of its protein base from 20,000 km away wants to attack the rest of the world? Actually that didn't stop Japan in WW2 which ended up with Operation Starvation – B29s dropping sea mines.

The Solution for the Chicoms

1. Go vegetarian for the duration of the war.
2. Increase grain production by 50 million tonnes per annum.
3. Agreement with Russia to ship grain across the Siberian railway.

China has hired 80,000 agricultural inspectors who are going around rural areas to rip up orchards and forests and any other ground that can be repurposed for growing grain.

How do we know that war is definitely coming?

A green belt around the city of Chengdu was built at a cost of A$7 billion. It has now been bulldozed to put 40,000 hectares under the plough to grow 0.25 mpta of grain. In WA, this could be grown on 100,000 hectares which sells for $500 million for the land.

China is a structurally poor country.

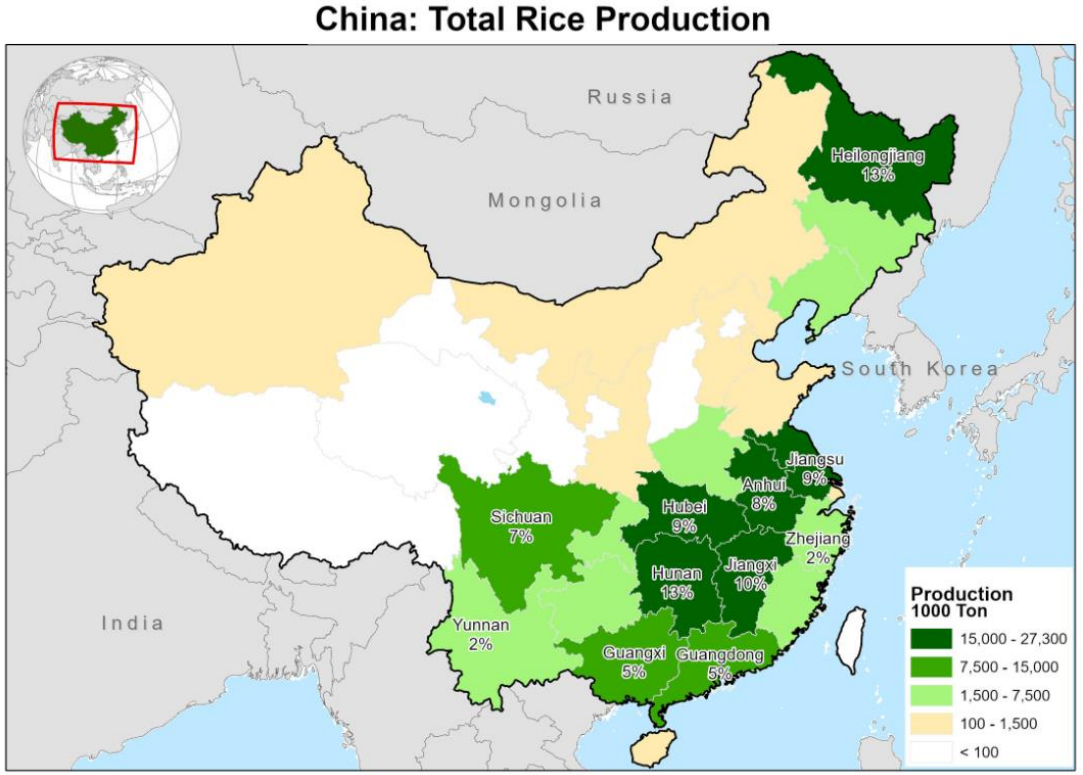
China produces 147 million tonnes of rice per annum.

No reduction of grain output is possible without impacting food security.

Meat is produced with imported grain and soybeans.

Nearly 95 % of the rice grown in China is produced under traditional puddled transplanted conditions.

Without hand planting of rice China's grain production would plunge.



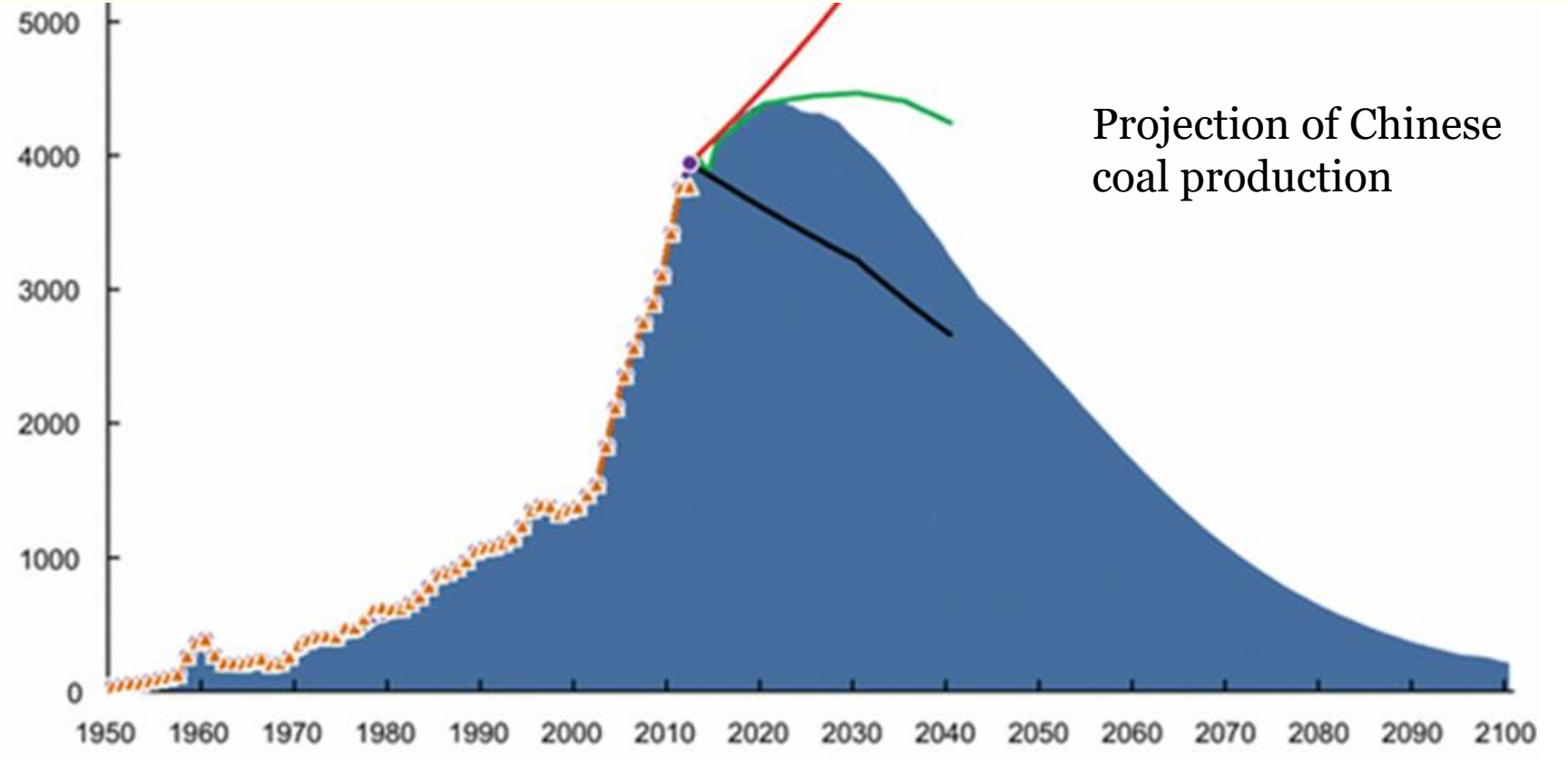
But farmers planting grain by hand inherently have a low standard of living. There are 425 million agricultural workers in China. So one farm worker feeds only himself and two other people.

Rice production can't be mechanised without production falling.

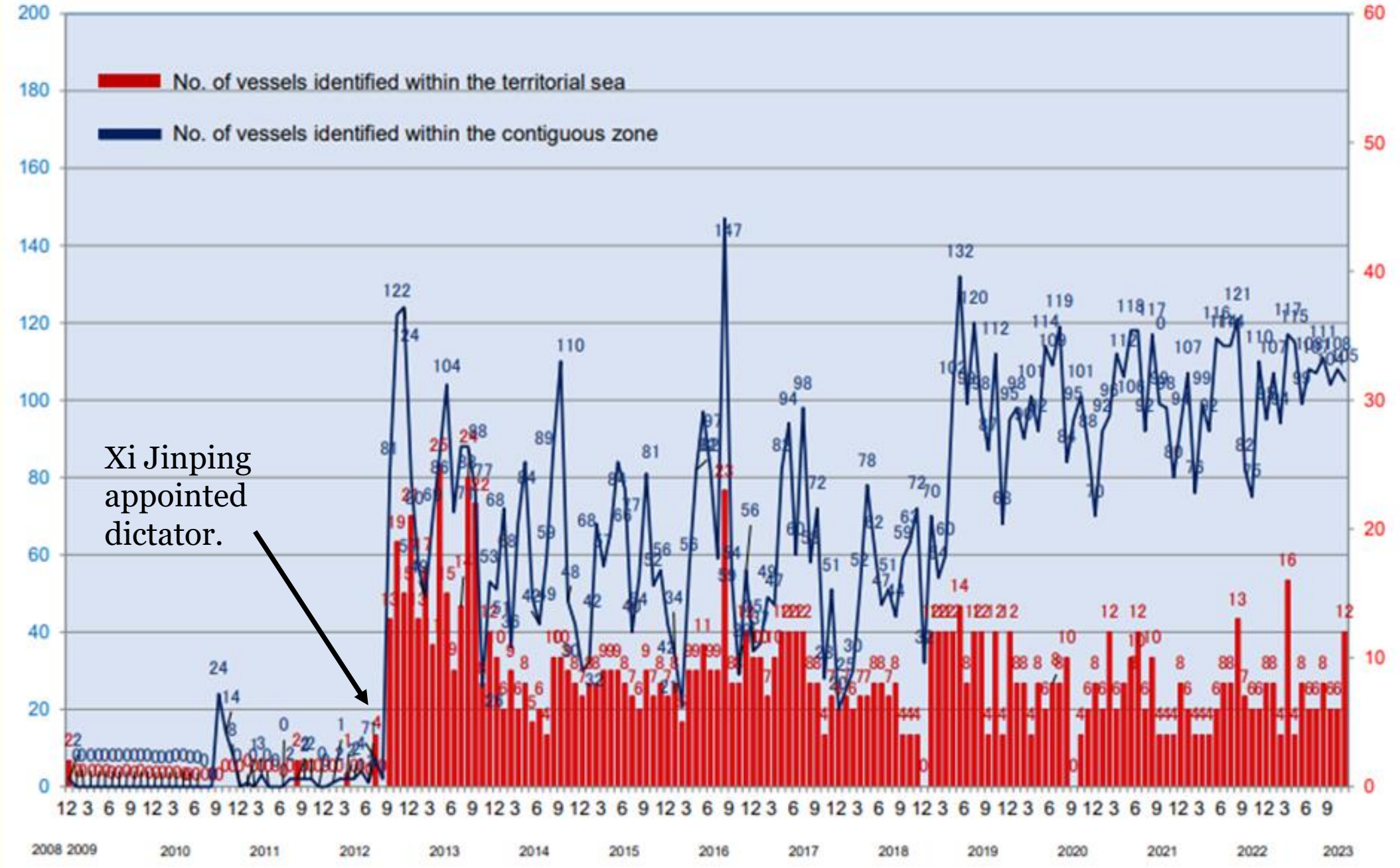
The farmers have to be cross-subsidised by the six industrialised coastal provinces of 300 million people. 600 million people in China earn less than US$141 per month.

We will only be fighting the 300 million, not the whole 1,300 million.

The Chicom economic miracle was partly due to cheap labour.



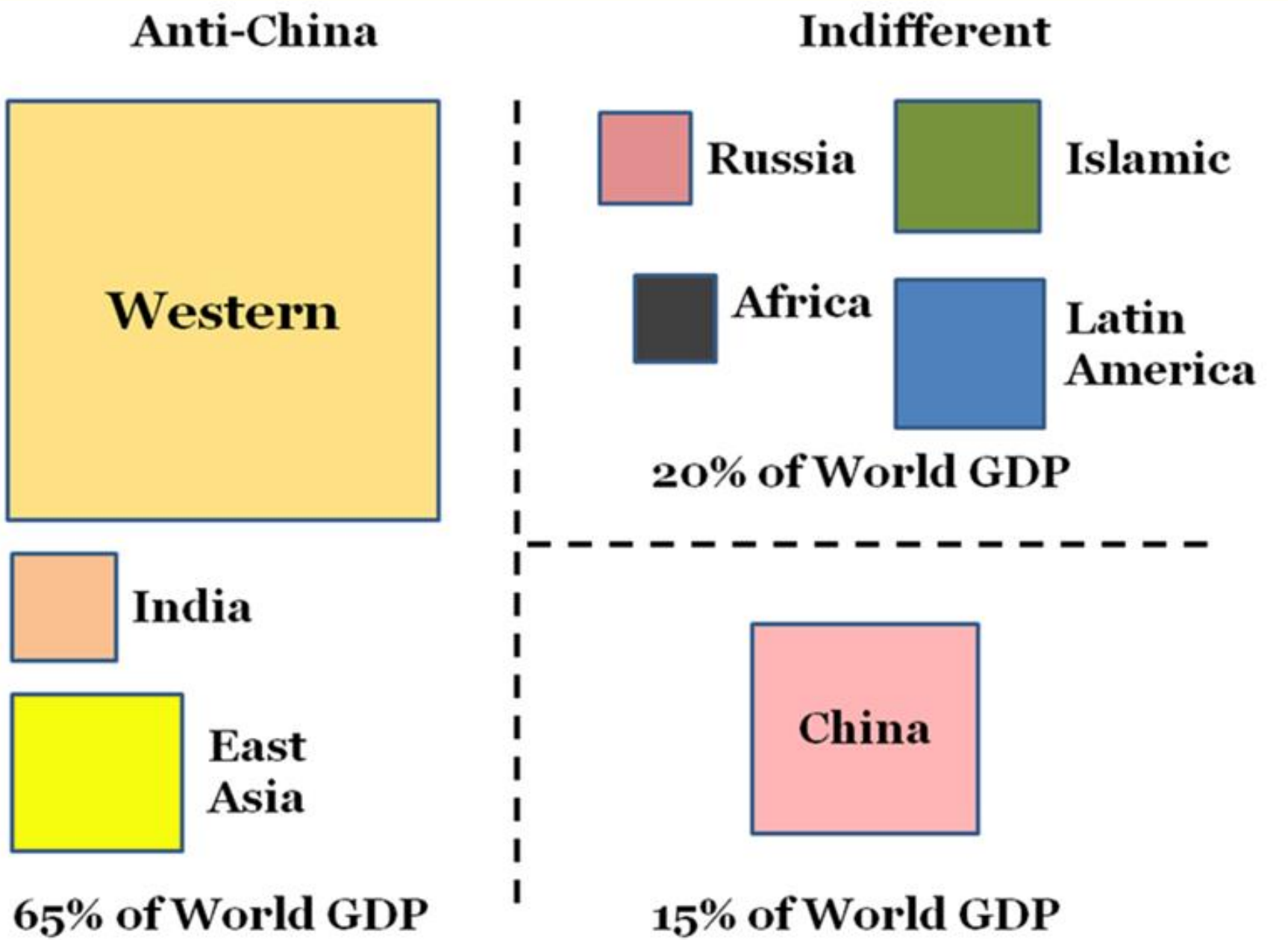
And to a large extent due to cheap energy from coal. China's coal reserves of 130 billion tonnes are only 100 tonnes per capita. Each Chinese person is burning through that endowment at the rate of 3.4 tonnes per annum and importing another 336 kg of coal. By comparison Australia has a black coal endowment of 5,900 tonnes per capita and an equal amount of brown coal.



China's baiting of Japan around the Senkakus

Updated monthly by the Japanese Ministry of Foreign Affairs

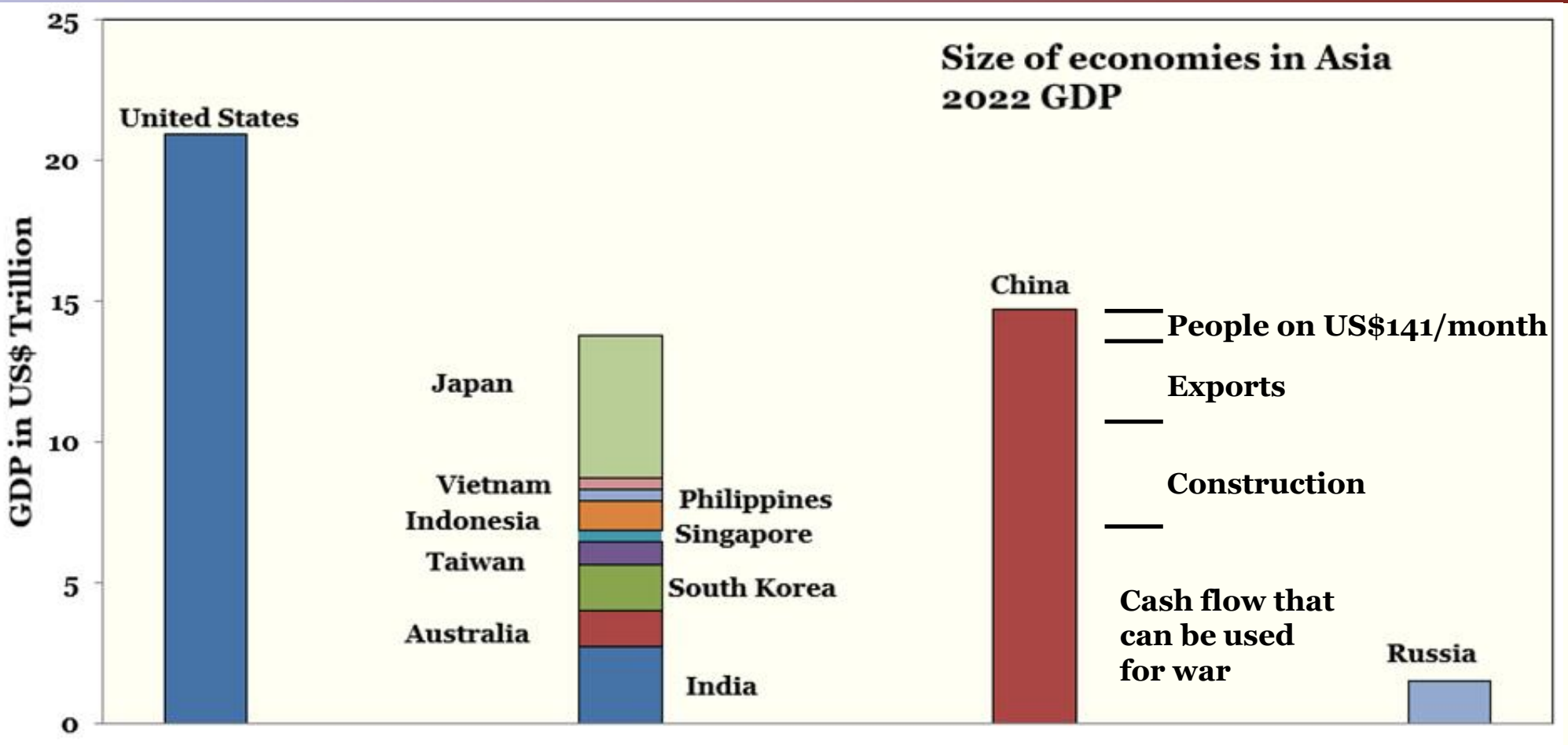
Until this graph goes to zero, war is coming to Asia.



The Correlation of Forces

China doesn't have friends.

China only has enemies and those who are indifferent and can be rented.



The Correlation of Forces – Relative GPD in Asia

The anti-China grouping is now twice as large as China's GPD.

30% of the Chinese economy is construction which will end.

China's share of world trade has plateaued at 15%.

If you take out the very poor, exports and construction, all of which are useless in war, China's GDP shrinks by more than half.

Why Taiwan will fight.

1. Because of Russia's plan for Ukraine. From page 10:

   Meanwhile the FSB was tasked with capturing local officials. The Russian counterintelligence regime on the occupied territories had compiled lists that divided Ukrainians into four categories:
   - *Those to be physically liquidated.*
   - *Those in need of suppression and intimidation.*
   - *Those considered neutral who could be induced to collaborate.*
   - *Those prepared to collaborate.*

   The Chicoms will kill the entire Taiwanese political class and sell their organs for transplants. So it is fight or die anyway.

2. The rest of the population will spend the rest of their lives having an hour per day spent on studying "Xi Jinping thought" which will be a living hell.

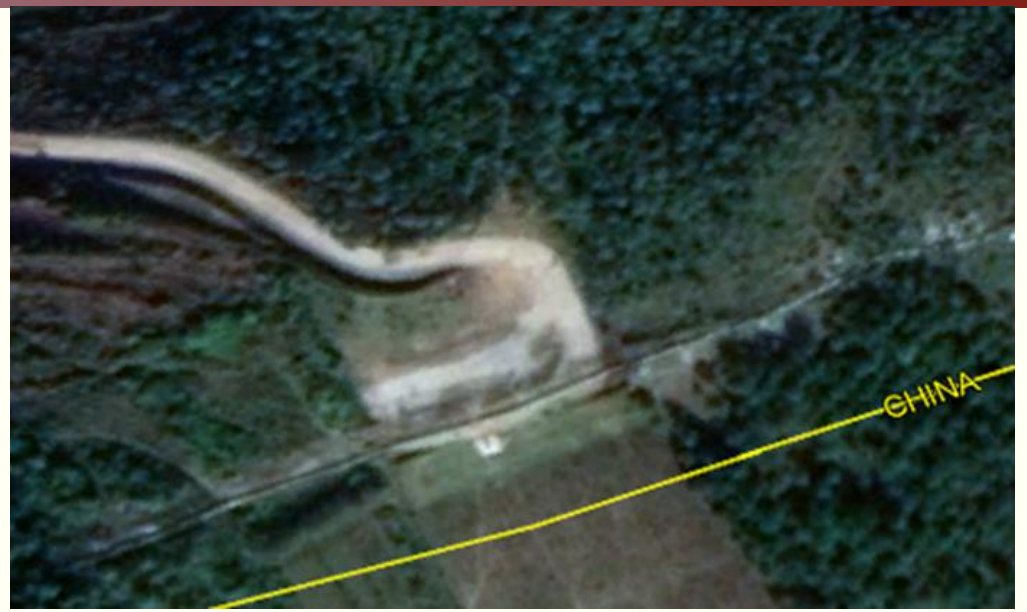
3. Japan realises that Chicom capture of Taiwan is an existential threat so Taiwan won't be fighting alone.

Not much concrete has been laid for an invasion of Taiwan.

But plenty of concrete has been laid for the invasion of Vietnam.

10 km north of the Vietnamese border at 22° 24' 22.4" N, 106° 42' 36.0" E

Artillery pads elsewhere along the border.



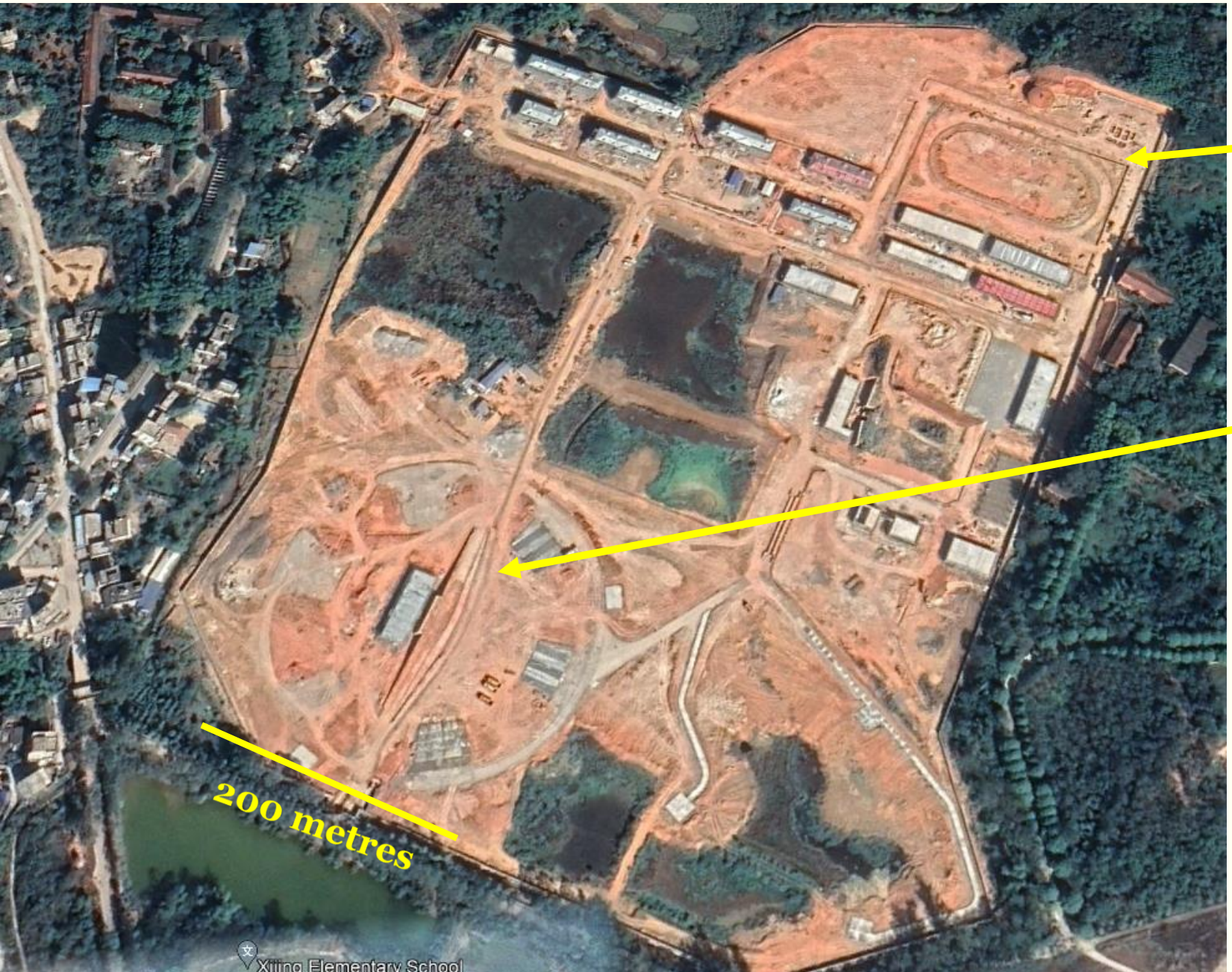
Chicom artillery pads along the China-Vietnam border.

SAM site under construction next to an airfield near the border with Vietnam

Only 22 km from the border

Well within artillery range

Great state autism – their invasion will go exactly to plan.



Obligatory running track

Central ramp for wheeled radar

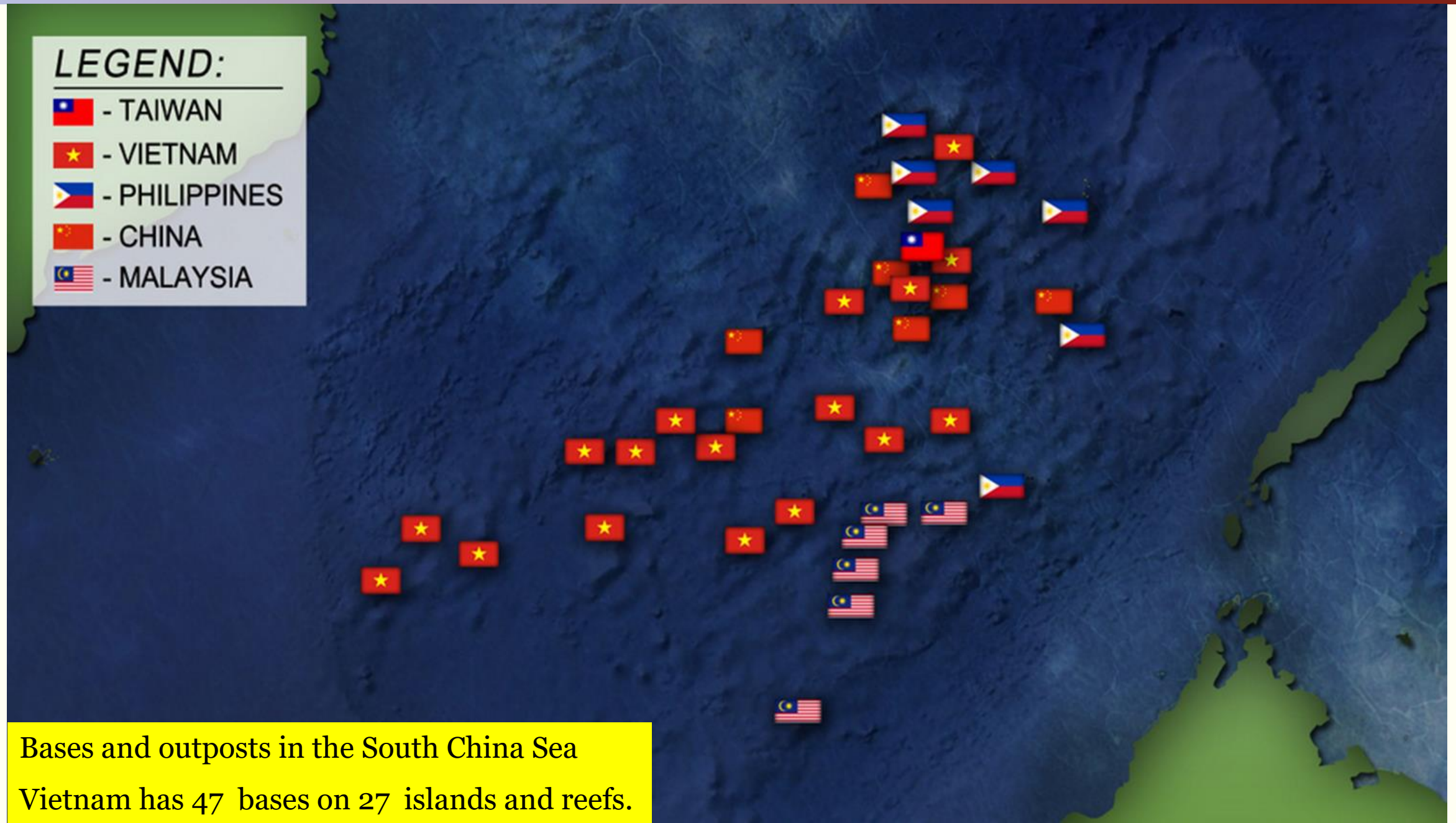
200 metres is the footprint of the original MLRS cluster munition.

China has been attacking Vietnam since 116BC.

These are the attack routes in 1979. They will use the same ones again.

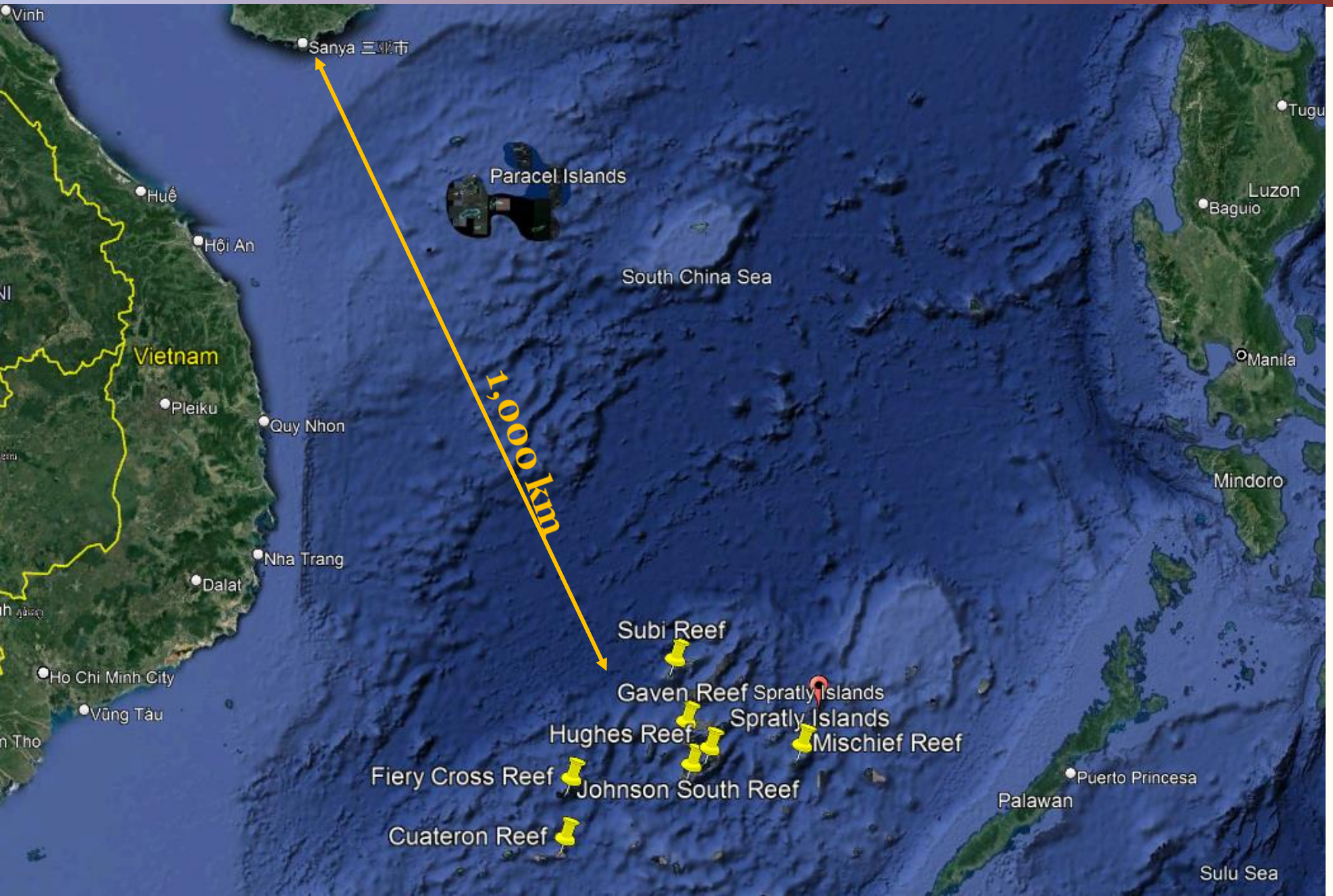
The Chicoms kept shelling Vietnam up to 1991.

Chicom strategy is to launch a surprise attack and call it a defensive pre-emptive strike.



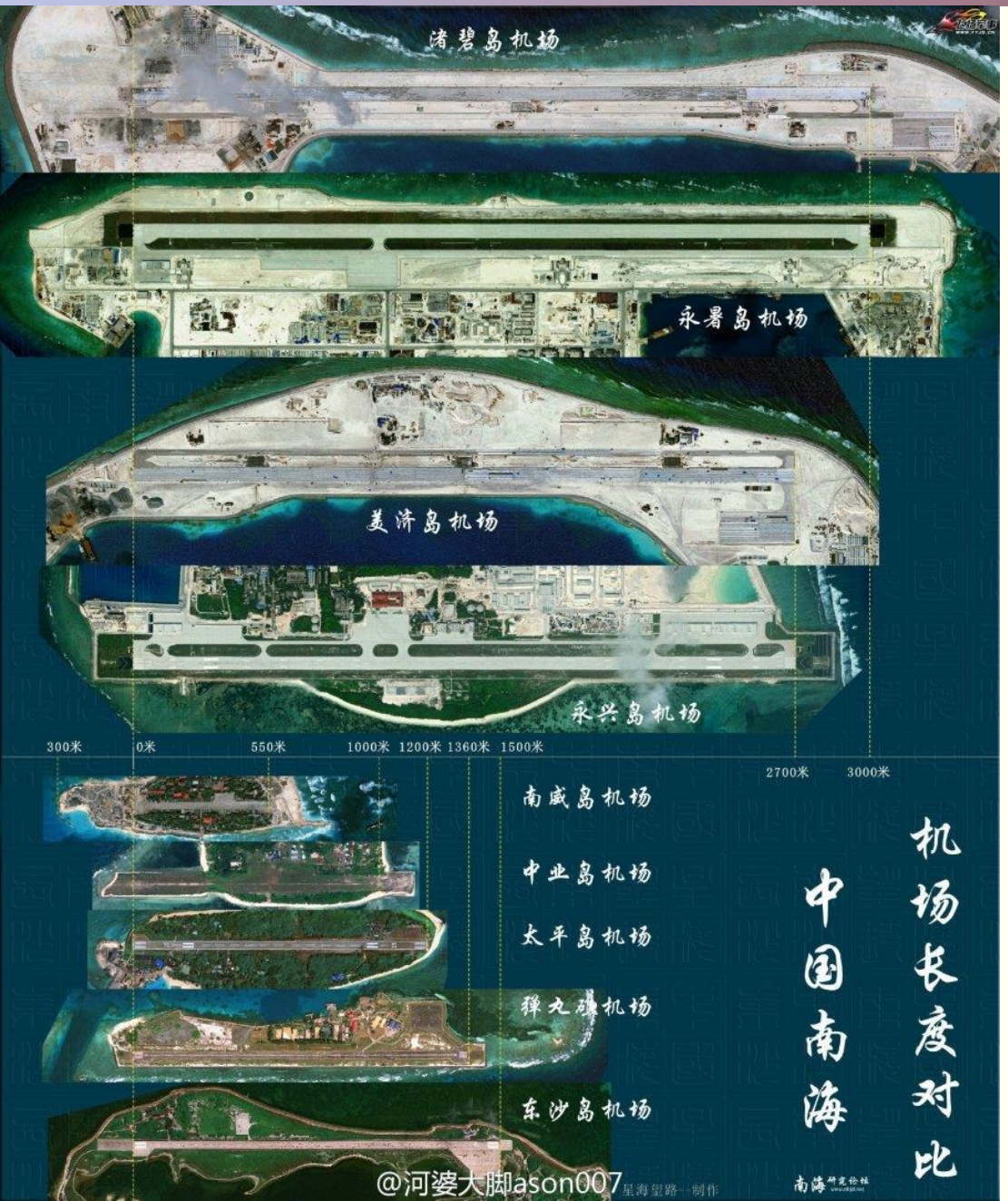
Bases and outposts in the South China Sea

Vietnam has 47 bases on 27 islands and reefs.



The South China Sea Kill Box

Chinese forces coming to the aid of their Spratly bases will be easily interdicted.



Airfields of the Spratlys and Paracel Islands

Chinese:	**Subi Reef**
	Fiery Cross Reef
	Mischief Reef
	Woody Island

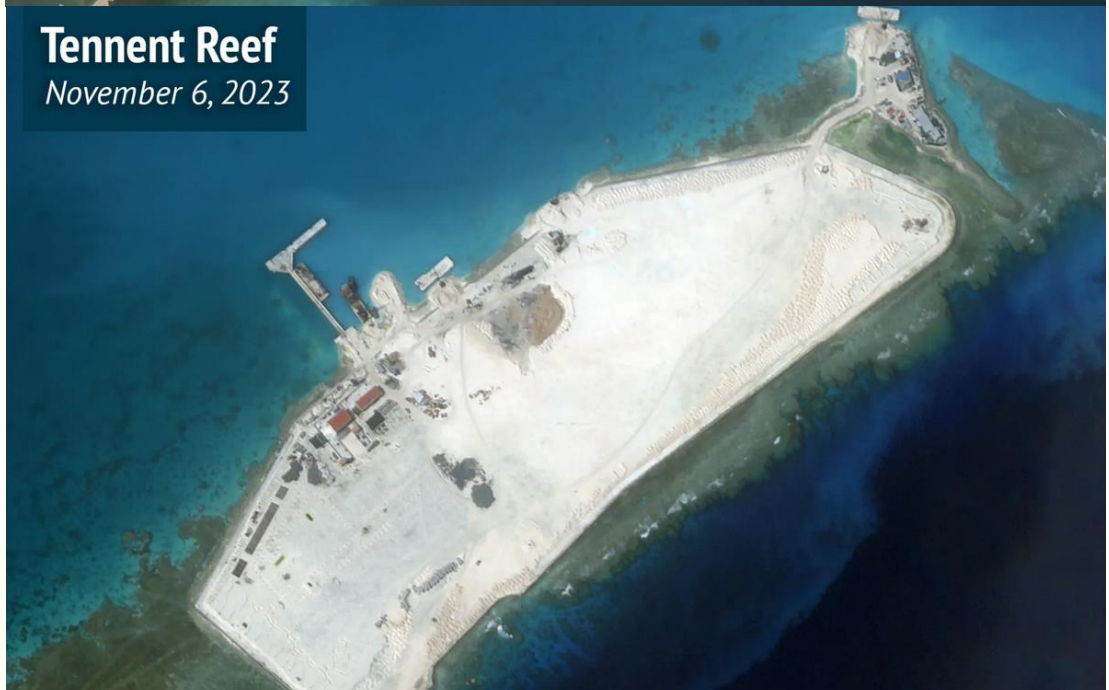
Vietnam	**Spratly Island**
Philippines	**Thitu Island**
Taiwan	**Itu Aba Island**
Malaysia	**Swallow Reef**
Taiwan	**Pratas Island**

Four of the Vietnamese bases

Vietnam's Recent Burst of Island-Building

Namyit Island 27th October 2023

Vietnam's island-building makes a mockery of China's claim to the South China Sea. Xi has now said that China should prepare for war at sea.



This, from 8th March, is interpreted to mean war over the South China Sea:

The armed forces "should coordinate the preparation for maritime military conflicts, the protection of maritime rights and interests, and the development of the maritime economy," Xi said at the meeting on Thursday, according to a report by state broadcaster China Central Television.

China built this 12,000 tonne coast guard vessel to ram and sink the coast guard vessels of other countries.

The say it can sink vessels up to 5,000 tonnes without being damaged itself

The Arleigh Burke Flight III destroyer is 9,700 tonnes.

One of the Filipino bases: The Sierra Madre on Second Thomas Shoal

On 5th March, 2024, Chinese Coast Guard attacking a Filipino supply ship to Second Thomas Shoal, breaking the windows on the bridge.

Just how nasty are the Chicoms?

A couple of incidents involving Australian defence personnel:

1. **On 18th November 2023, HMAS Toowoomba was in Japan's exclusive economic zone and stopped to have its divers clear nets snagged on its propellers. So a Chinese destroyer (DDG-139) approached and blasted the divers with its sonar.**

2. **On 17th February 2022, a Chinese destroyer in the Arafura Sea fired a military-grade laser at an RAAF P8 Poseidon aircraft 65 km north of the Australian coast in an attempt to blind the pilots.**

PLAN DDG-139 Ningbo

What the Allies should do as soon as the war starts

1. Sink every Chicom ship in the Indian and Pacific Oceans.
2. Seize the Chicom bases in the Spratlys which will be allocated amongst the Allies as per the following schedule:

Vietnam	Fiery Cross Reef
	Cuateron Reef
Japan	Subi Reef
	Gaven Reef
US	Mischief Reef
	Hughes Reef
	Johnson South Reef

The South China Sea is a just a big kill box for Chinese forces and they will waste any enormous amount of effort trying to save their bases there, while exposed to a 1,000 km long supply line that is flanked by Vietnam 400 km to the west and the Philippines 300 km to the east.

Potential for a stab in the back from the Obama faction of the Democrats

1. Obama made Japan send back to the US 300 kg of weapons-grade plutonium in 2014 – the Chicoms had complained about Japanese possession of plutonium.
2. China released a video in July 2021 saying that it would nuke Japan on a daily basis if Japan came to the aid of Taiwan.
3. In the Obama administration, Susan Rice used to mock Joe Biden as being stupid but Obama made Biden include Susan Rice in the White House as his agent.
5. Obama has form – he stopped the US military from coming to the aid of the Benghazi consulate and fired 170 generals.
6. A large chunk of US leadership has taken money from China.
7. The parallel is with UK/French abandonment of Czechoslovakia in March 1939.
8. Japan needs nuclear weapons to make sure the war with China remains conventional.

The Chicom threat to nuke Japan

Sometimes it is wise to take people at their word.
It seems that the Chicoms think they have the threat of US nuclear retaliation sorted.
So if China starts their war without hitting US bases at the outset, you know it
will end with a nuclear attack on Japan.

Lessons from the Ukraine War

The Early Lessons

1. The Russian armed forces are culturally vulnerable to deception.

2. Survivability depends on dispersing ammunition stocks, command and control, maintenance areas and aircraft.

3. Russia started out with a 2:1 advantage in artillery and this reached 10:1 in June 2022 as Ukrainian ammunition stocks became exhausted.

4. Precision is not only vastly more efficient in the effects it delivers but also allows the force to reduce its logistics tail and thereby makes it more survivable.

5. Survivability is often afforded by:
   a. Being sufficiently dispersed to become an uneconomical target
   b. Moving quickly enough to disrupt the enemy's kill chain and thereby evade engagement.
   c. Or by entering hardened structures.

6. The average life expectancy of a quadcopter remained around three flights, of a fixed-wing UAV was around six flights.

7. Russian artillery would tend to operate in batteries a third of their range behind the forward line of own troops (FLOT), with a spacing of 100–150 m between their guns.

8. Russian units with their own UAVs could deliver highly responsive fires, bringing effect to bear within 3–5 minutes of target detection.

Now considered to be not cost-effective - too easily shot down.

9. For targets that ran through a fire-control headquarters, the Russians continued to add new detections to the bottom of the list and prosecute strikes in order, leading to fire missions taking 20–30 minutes at the tactical level.

10. The Russians rarely displaced after firing unless they received fire. This appears to have been because the volume of shells they needed to fire their missions could not be displaced or repositioned quickly, even if the guns could.

11. Russian units continued to seek to execute their orders long after it had become apparent that assumptions in those orders were wrong. Until an order is countermanded commanders will continue to try to execute their last instruction.

12. Russian aviation, shot down over Ukraine, has been found on more than one occasion to have its radar in the stowed position, with safety covers over primary sensors - indicative of complacency and poor ground crew training.

13. Fratricide is a systemic issue between Russian systems. For example, the Khibiny EW pod, mounted to a number of Russian aircraft, automatically detects radars and disrupts them. Unfortunately for the Russians, it tends to also do this to other Russian aircraft. Pairs of Russian strike aircraft mounting this system have therefore had to choose between having a functional radar or EW protection.

    They have often been ordered to prioritise their radar.

Khibiny EW pods installed on the wings of two Flankers

Dispersion and Survival

1. There is no sanctuary. The first clear lesson from the war in Ukraine is that the enemy can conduct strikes on targets throughout its adversary's operational depth with long-range precision fires.
2. For the air force, it was found that the ability to conduct dispersed operations was critical to survivability. Without this capability it is likely that the air force would not have survived the opening days of the conflict.

3. The Ukrainian Ground Forces similarly found that long-range precision strikes were used against their stockpiles, against training establishments and maintenance facilities when these were identified.

Ukrainian Su-27 after practicing dispersed operations in August, 2020

4. Maintenance facilities had to be situated a long way from the front and dispersed, not because distance assured protection, but because increasing the space over which the enemy had to search for them improved survivability.

5. The reduction in the logistical tail and therefore reduced vulnerability of precision systems is perhaps as important as their effect in terms of their superiority to non-precision fires.

US Army's M978 heavy tactical fuel truck – 9,500 litre capacity

6. Russian ballistic missiles meanwhile – notably Iskander 9M723 – fly in a quasi -ballistic trajectory and launch six decoys that significantly alter their radar cross section and targetability.

Iskander missile on Transporter Erector Launcher

- 500 km range
- 700 kg warhead
- Single stage, solid fuel
- Mach 5.9 burnout velocity
- 30 metre accuracy
- Production rate of 64/year

5. For the most part, the Russian missile systems are reliable and accurate. Cruise missiles can be intercepted, but the Russians routinely adapted flight routes for every mission and such missiles were observed to make up to 80 changes of course on their way to a target.

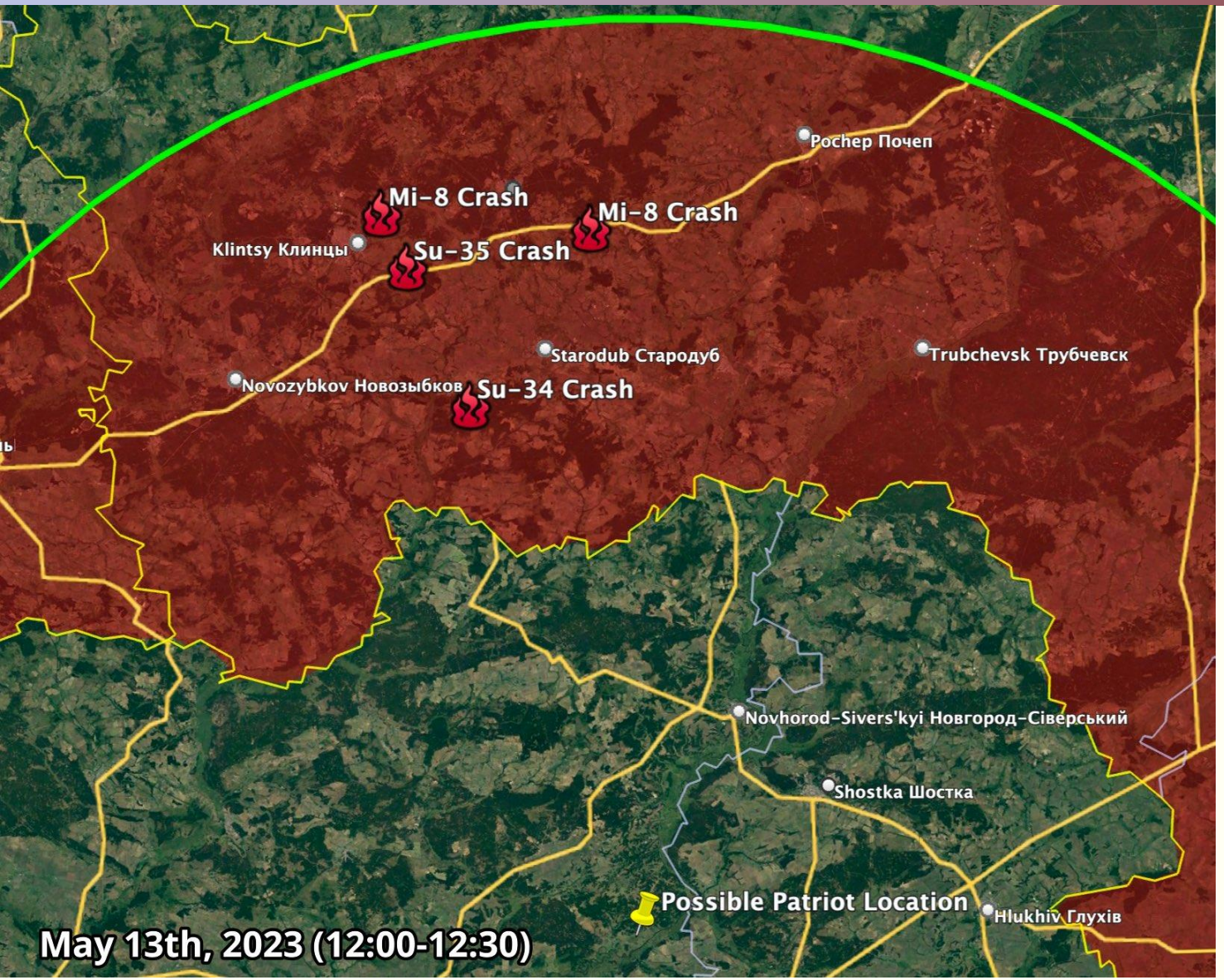
Kalibr cruise missile
- 450 kg warhead
- 300 km range
- Submarine, air or ground launched

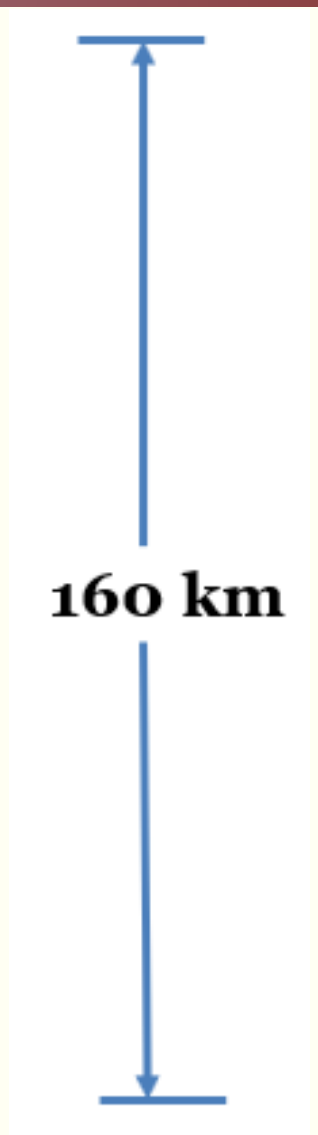
Penetration aid from a Russian 9M723 Iskander ballistic missile. *Courtesy of Jack Watling*

Penetration aid for an Iskander ballistic missile.

Didn't work against a Patriot battery in Kiev at 3.00 am on 14th May 2023. Russia fired 18 missiles to arrive within a two minute period – 6 Kinzhal, 9 Kalibr cruise missiles, 2 Iskander and 1 S-400. All were shot down.

The previous day a Patriot battery shot down 4 aircraft in the Bryansk region of Russia 70 km from the border – two Mi-8 EW helicopters, an Su-34 and an Su-35. Eleven crew died.





The Bryansk Patriot ambush of 13th May, 2023

The Russian Air Force stripped all of the training establishments, then they also stripped the academies, and finally gave all of the students junior officer commissions so they could deploy them.

Eight of the eleven killed.

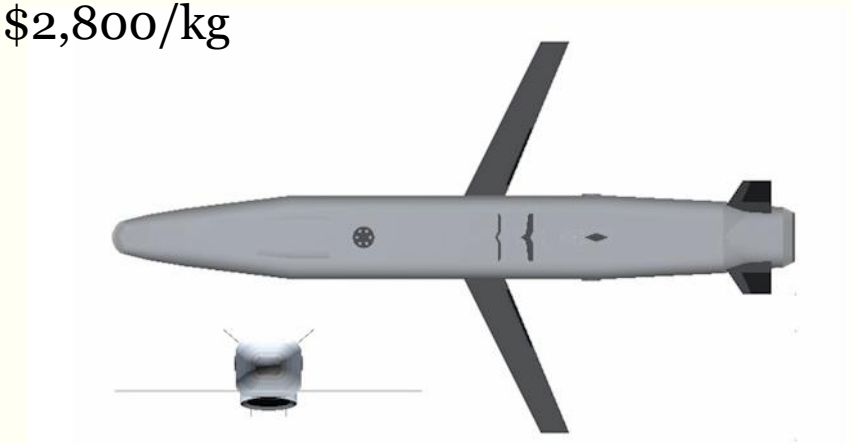
On the subject of penetration aids

Miniature Air Launched Decoy

MALD in Luhansk on 12th May
Accompanying Storm Shadow

Length: 2.84 meters (9 feet 7 inches)
Wingspan: 1.71 meters (5 feet 7 inches)
Weight: 115 kilograms (250 pounds)
Speed: Mach 0.91
Ceiling: 12,200 meters (40,000 feet)
Range: 920 kilometers (575 miles)
Endurance: 45 minutes
Unit cost: US$322,000

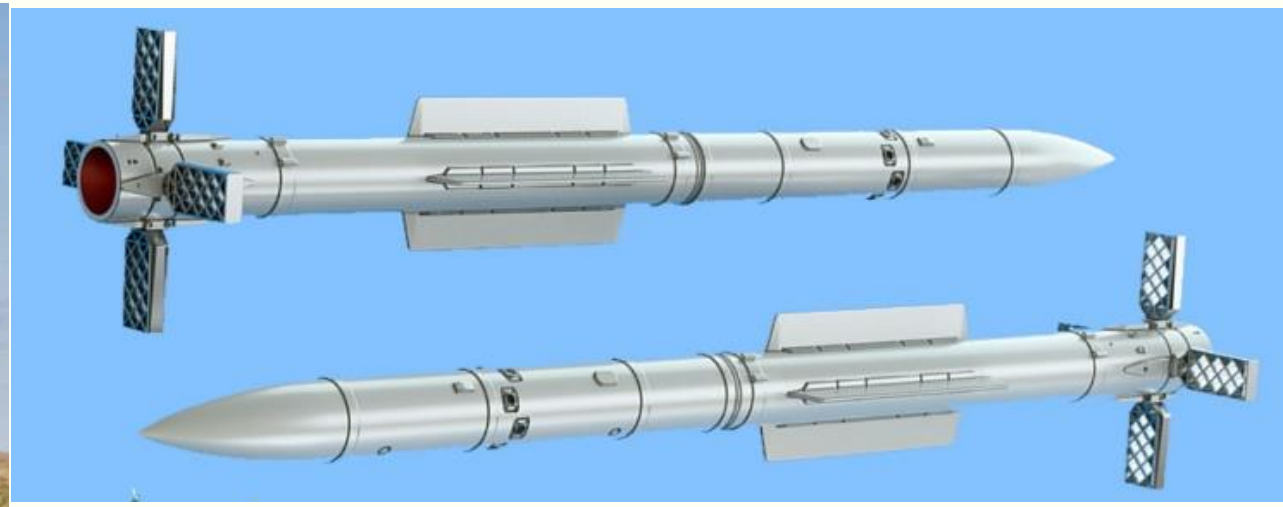
US$2,800/kg



The Air War

1. Ukrainian fighter aircraft were both totally technologically outmatched and badly outnumbered.
2. Russian fighters have remained highly effective and lethal against Ukrainian aircraft near the frontlines throughout the war, especially the Su-35S with the R-77-1 long-range missile and the Mig-31BM with the R-37 very long-range missile.

Su-35



R-77-1 radar-guided missile
110 km range

Mig-31
- First flew 1975
- Maximum speed of Mach 2.8 at 70,500 feet
- Combat range 1,450 km
- Production ended 1994
- 519 built
- Longest range kill 177 km

R-37
- Developed in the late 1980s
- Range 400 km
- Weight 600 kg
- Maximum speed 7,400 km/h
- Midbody strakes
- Russia has been firing up to six per day

3. Throughout the war, Russian fighters have frequently been able to achieve a radar lock and launch R-77-1 missiles at Ukrainian fighters from over 100 km away.

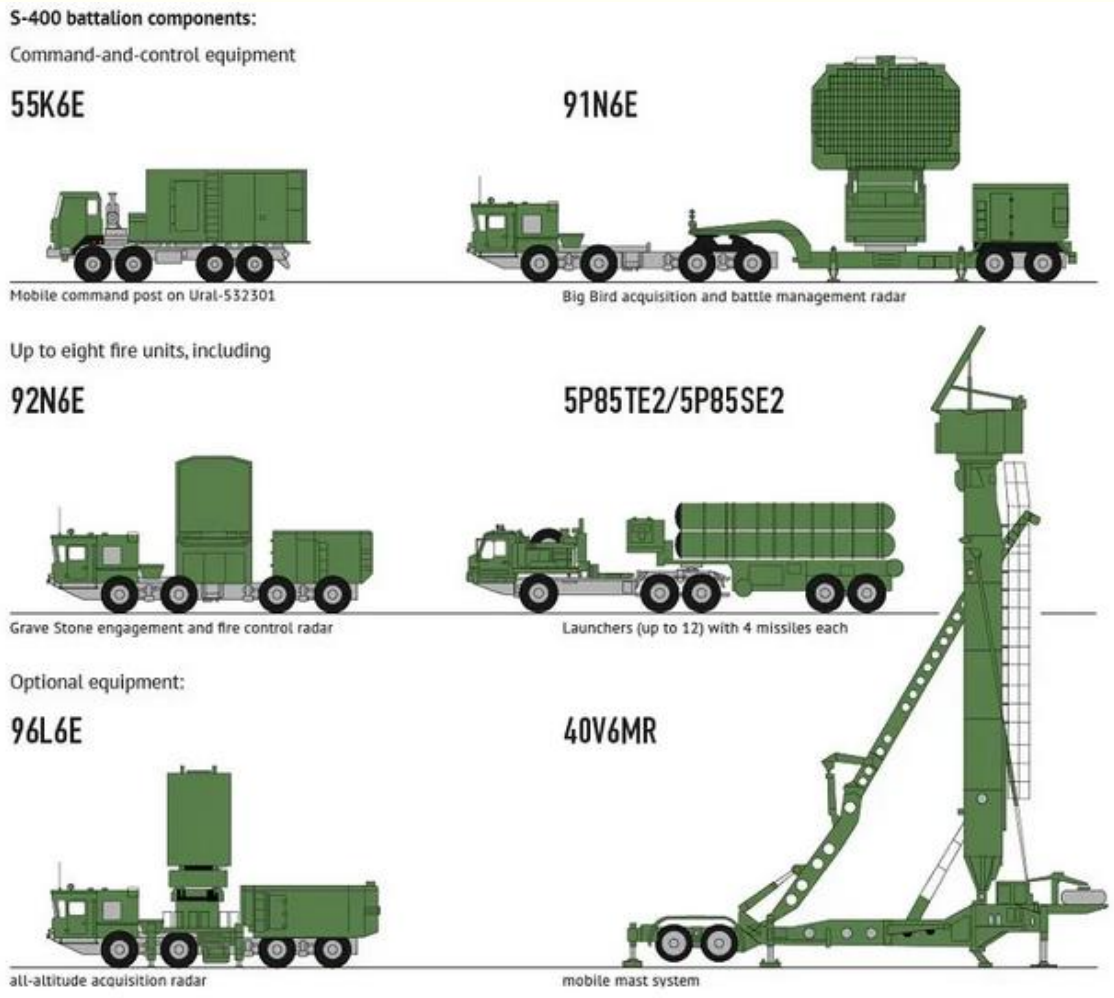
4. Russian ground-based air defence has also been highly effective since March 2022, especially the long-range S-400 SAM system supported by the 48Ya6 'Podlet-K1' all-altitude long-range surveillance radar system.

48Ya6 Podlet-K1
- S band
- 600 km range
- April 2018

The 48Ya6 Podlet-K1 deserves a lot of respect.
From this report:

Regenerating Warfighting Credibility for European NATO Air Forces

Justin Bronk



This sentence on page 30:

To give an idea of the threat, Ukrainian fighter pilots have been shot down while flying at altitudes as low as 15 ft by SA-21 SAMs fired from over 150 km away, enabled by active-seeker terminal guidance on the missile itself coupled with launch-cueing and mid-course guidance from a 48Ya6-K1 'Podlet' all-altitude radar relayed through the standard SA-21 battalion 55K6 command vehicle.

5. The most effective Ukrainian SAMs against Russian fixed-wing aircraft have consistently been SA-11 'Buk' systems operating transporter-erector launcher and radar vehicles as individual pop-up threats rather than as formed batteries.

First service in 1980

The longest range shoot down of the war to date is a Russian AWACS plane at more than 250 km by a S-200 missile, NATO designation SA-5 Gammon.

6. Russian close air support efforts have generally been limited to low-level unguided bombing runs and unguided rocket barrages, which have failed to inflict decisive damage on Ukrainian ground forces and have led to sustained losses to MANPADS among the Su-25 and Su-34 fleets.

   By late 2023 Russia had switched to Su-34s launching glide bombs against Ukrainian positions.

7. On the other hand, Russian high -altitude fighter CAPs with Su-35 and more recently with Mig-31 interceptors have shot down significant numbers of Ukrainian ground attack aircraft near the frontlines from distances that render them all but immune to return fire.

Russian helicopter shoot down
March 2022

8. From 24 February to the end of May 2022, more than 2,000 3M-54 Kalibr, Kh-101, Kh-55, Kh-555 and other cruise missiles were fired into Ukraine, usually in salvos of 4–12 at a time. Around 240 Iskander missiles were fired at 160 targets.

9. The Russian targeting protocol for cruise missiles had a 48 hour OODA loop. They would often hit an empty location.

10. The accuracy of the Shahed-136 is sufficient to produce multiple hits on a single building, and the Shahed-136 can also bank to circle around a target upon arrival to perform a steep (>70-degree) terminal dive from a specific bearing programmed before launch.

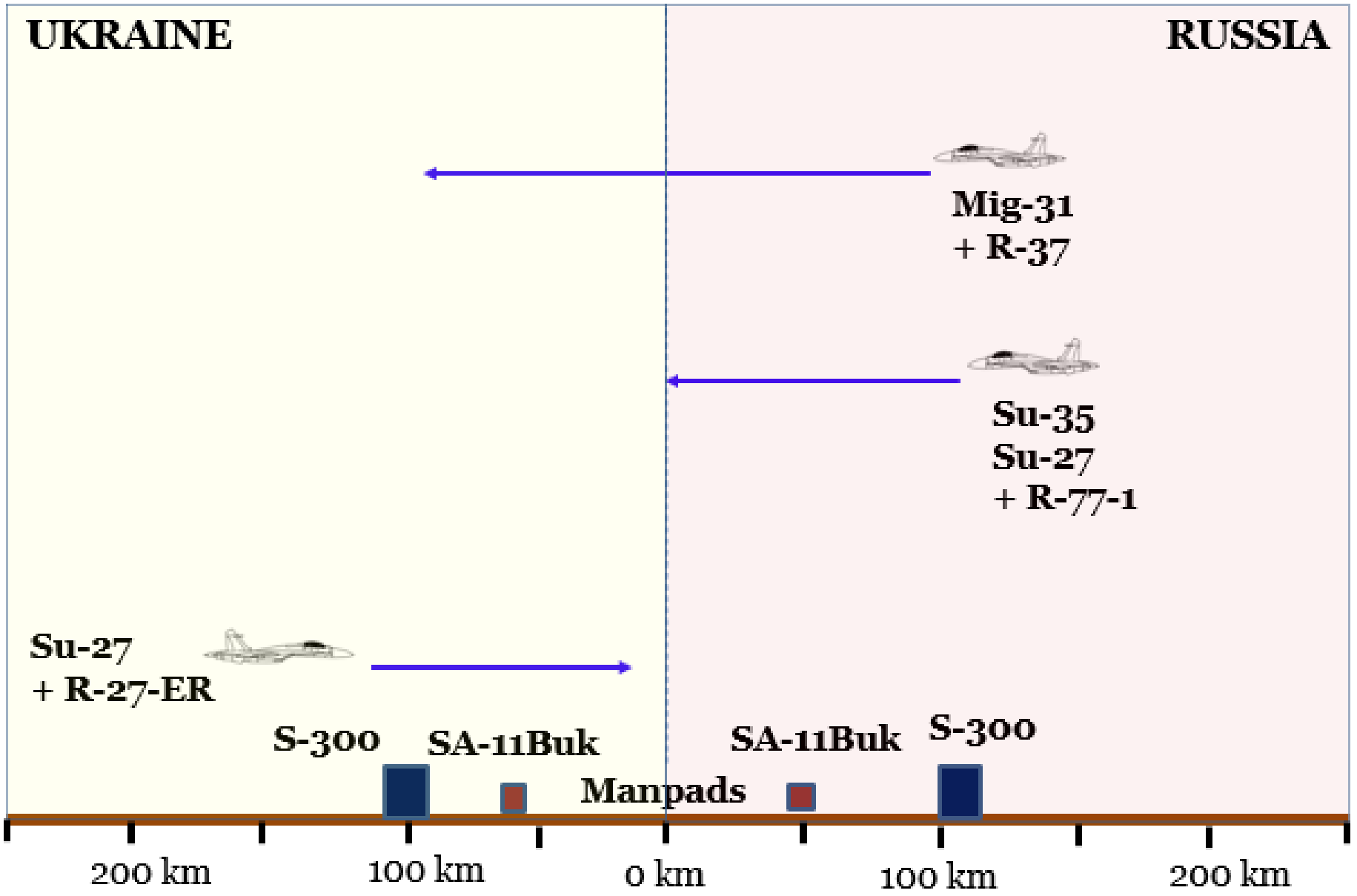
Shahed-136

Pusher propeller, piston engine.
Cruise speed of 185 kmph.
900 km range.
Unit cost of possibly US$50,000.
Iran is now price-gouging the Russians at US$290,000 per Copy.

Shahed-136 warhead with shaped charges.

15 kg

Ukraine has lost two fighter aircraft due to their engines ingesting debris from a Shahed-136 they had shot down.



Russia has compensated for the shootdown of its AWACS aircraft by using more reconnaissance drones.

When almost all missiles missed, in both directions:

Operation Allied Force against Serbia in 1999

1. The Serbians fired **815 SAMs** at NATO aircraft, downing one F-16 and one F-117 and damaging a second F-117. This is a 0.36% success rate.
2. NATO fired **743 HARM** anti-radiation missiles at SAM sites. Of the 389 HARMS fired at SA-6 batteries, three succeeded in destroying the SAM battery. This is a 0.77% success rate.

Lesson: Fixed air defences crippled but mobile air defences survived, same as in Ukraine

Two of Serbia's three static S-75 Dvina / SA-2 Guideline SAM battalions and 70 percent of their static S-125 Neva / SA-3 Goa SAM sites were destroyed as compared with only three of their 22 mobile SA-6 Gainful SAM systems.

SA-6 Gainful

Current Russian Operational Doctrine

Infantry

Russia's attack in February 2022 was based on Battalion Tactical Groups. These had insufficient infantry and were defeated.

Russia now has four infantry unit types: disposable; line; assault; and specialised.

Prisoner and conscript troops appear to be under the influence of amphetamines or other narcotics. Under threat of being shot for retreating, they find points of weakness in the Ukrainian defences where these troops make surprising amounts of progress or face very limited fire. Alternatively, where the defence is strong, the revelation of Ukrainian firing positions allows specialised troops to begin targeting them.

152-mm howitzers fire until the assault is 400 m from the target position, after which fire is taken over by 122-mm howitzer or 120-mm mortar fire until the assault closes to its final assault positions.

The final advance is covered by infantry mortars and then grenades are used before entering the target position.

Russia is now sending small groups on quad bikes to minimise the target to Ukrainian FPV drones.

When you have shot too many shells ……

The last one blows the barrel.

Russian MSTA-SM2

Tanks lose accuracy through barrel wear.

The importance of barrels

Artillery park in Omsk, Russia in May, 2021

1,300 D30 towed howitzers

None left in May, 2023.

80 years of production has been bled out in two years.

The Russian command has ordered more glide bomb attacks to make up for the lack of artillery.

And thus the recent increase in shootdowns of Su-34s. The glide bombs can be launched 50 km from the target. Recently 107 air attacks/day on the frontline.

The Russian Intelligence-Reconaissance-Strike Complex

The Orlan-10 drone finds targets for the:

Lancet kamikaze drone

Electronic Warfare

The Russians now employ approximately one major EW system per 10 km of frontage, usually situated approximately 7 km from the frontline, with more specialised EW capabilities at at higher echelon. This is primarily an anti-drone role and also blocking of GPS signals.

Another function of Russian EW troops is interception and decryption of Ukrainian military communications. When not intercepting traffic they are able to suppress Motorola radios up to 10 km from the front line.

Counter-drone EW systems are distributed down to the platoon level.

Command and Control

Ukrainian GMLRS has pushed Russian command posts to 20 km from the front. These are linked by ground-laid telecoms cables, usually laid within 24 hours of a command post being established.

The Russia-Ukraine War has vindicated air power theory:

- The larger force in terms of size and technology will prevail.
- The air war will last three days.
- To determine the size of your air force after the air war, calculate how many you will lose due to the loss/exchange rate using Lanchester equations.
- Longer range air-to-air missiles will push away the enemy's aircraft.

Country	Missile	Weight	Range
Russia	R-77-1	190 kg	110 km
	R-37	600 kg	400 km
Ukraine	R27R/ER	253 kg	100 km
China	PL-15	230 kg	145 km
US	AIM-120D	160 kg	160 km
Germany	Meteor	190 kg	200 km+

The Meteor costs €2 million
- equates to A$3.1 million
- A$16.45 per gram
- A$1.13 per gram for silver
- A$87.33 per gram for gold

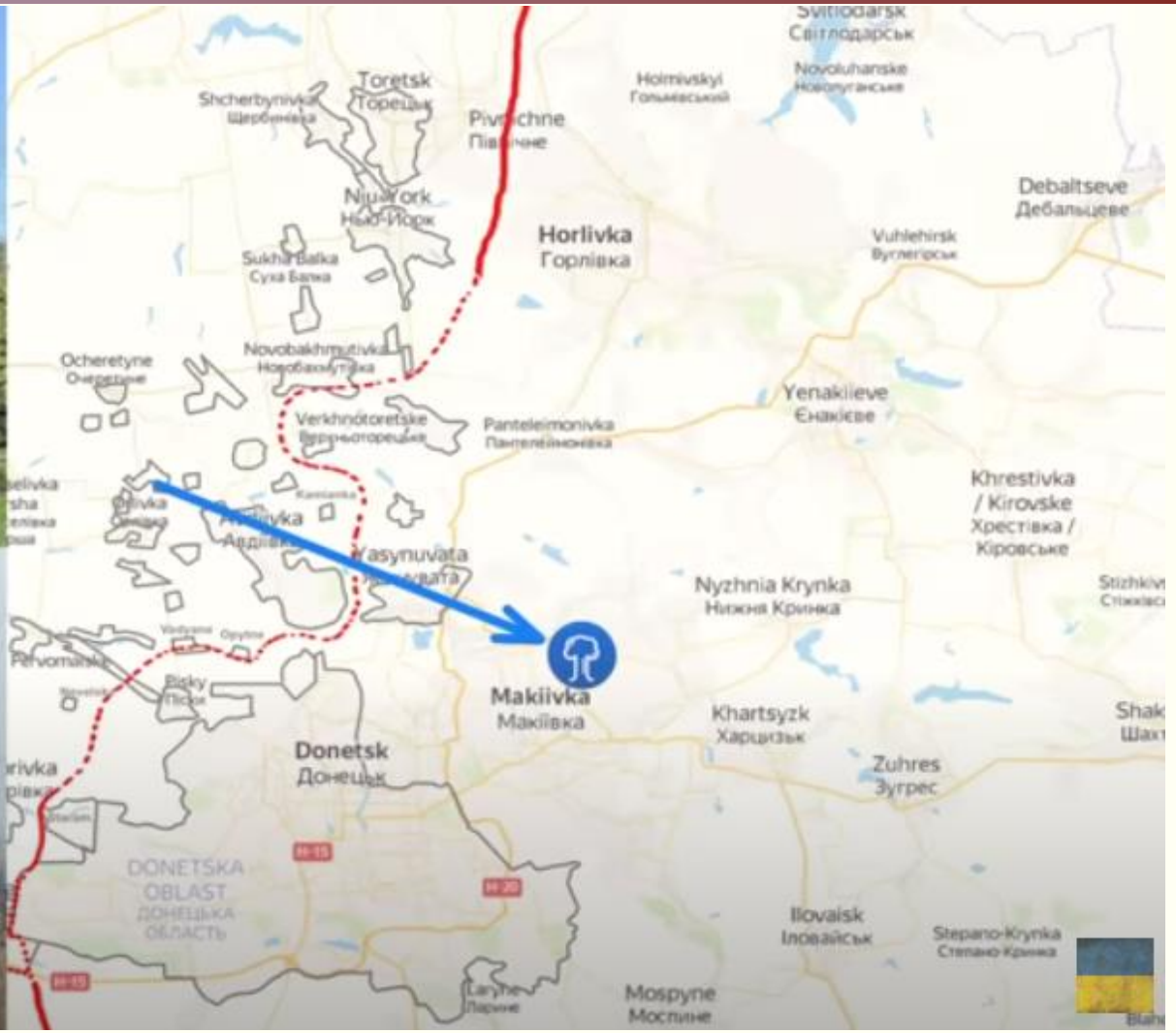
The solutions to effective enemy SAM systems:

1. Yom Kippur solution – overrun the SAM sites with armour to enable the air force to operate.
2. Miniature Air-Launched Decoy (MALD) - overwhelm with decoys mimicking allied aircraft to deplete their magazines.
3. Leave targeting of enemy assets behind the front line to cruise missiles and long range artillery, using cluster munition warheads to avoid the need for precision to achieve effects.

The solutions to enemy drones:

1. An integrated net of millimeter radars with microwave and lasers such as the Skylock system.
2. Point protection against kamikaze drones using Active Protection Systems such as Trophy and Iron Fist.

The latest iteration of the HARM: Stand-in Attack Weapon (SiAW)
- chines reduce the radar signature and provide body lift



No Sanctuary

On 1st January 2023, a HIMARS strike on a Russian base at Makiivka reportedly killed 500 Russian troops with a further 100 wounded. Cost-effective at US$1,200 per killed/ incapacitated Russian. Exploited the Russian proclivity to phone home just after midnight on New Year.

What is best in tube artillery systems?

The experience of the Ukraine War is that utility is:

Wheeled > Tracked > Towed

The Ukrainian experience is that artillery fire is quickly subject to counter-battery fire so that wheeled or tracked is better than towed.

The tracked systems in the Ukraine, including the German Panzerhaubitze 2000 and the Polish/Korean Krab, are having a lot of downtime for maintenance and are much slower on the ground than the wheeled systems which can drive to maintenance depots under their own power.

French Caesar 155 mm

Swedish Archer 155 mm

South African G6 155 mm

Drones Directing Artillery

A standard platoon defensive position took normally took 60 to 90 artillery rounds to destroy.

But with drone-guided fire this was reduced to just 9 rounds.

Drones had been supplied to all Ukrainian artillery units.

This suggests an improvement of a factor of 7-10.

Which is roughly what we see in the ratios of artillery shells : casualties.

A Russian take:

Ukrainian artillerymen usually fire 'in bursts' of 2-3 shots, a 3 – 4 minute pause to make corrections then again 4 – 6 shots to finish them off.

As a rule there are no more than three such series.

Cost-effective delivery of high explosive by cruise missile.

Two years into the war and new designs are appearing. This is the best so far. It is powered by a micro turbojet engine weighing 4.4 kg.

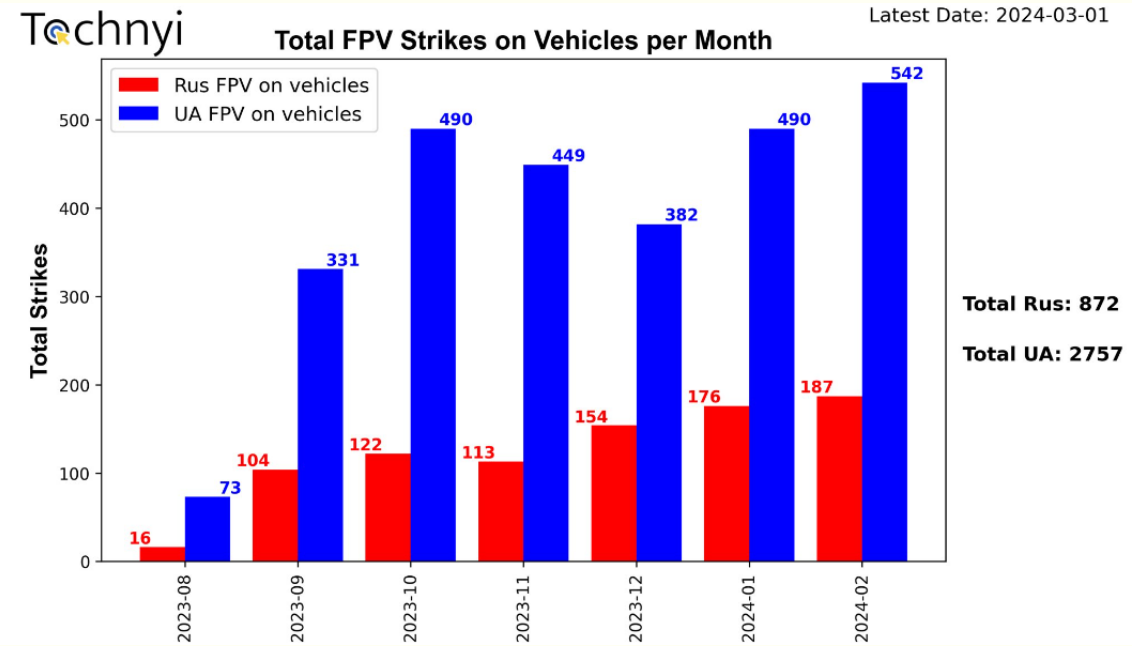
It's fuel consumption is one litre per 10 km, so warhead size can be changed for more fuel and increased range.

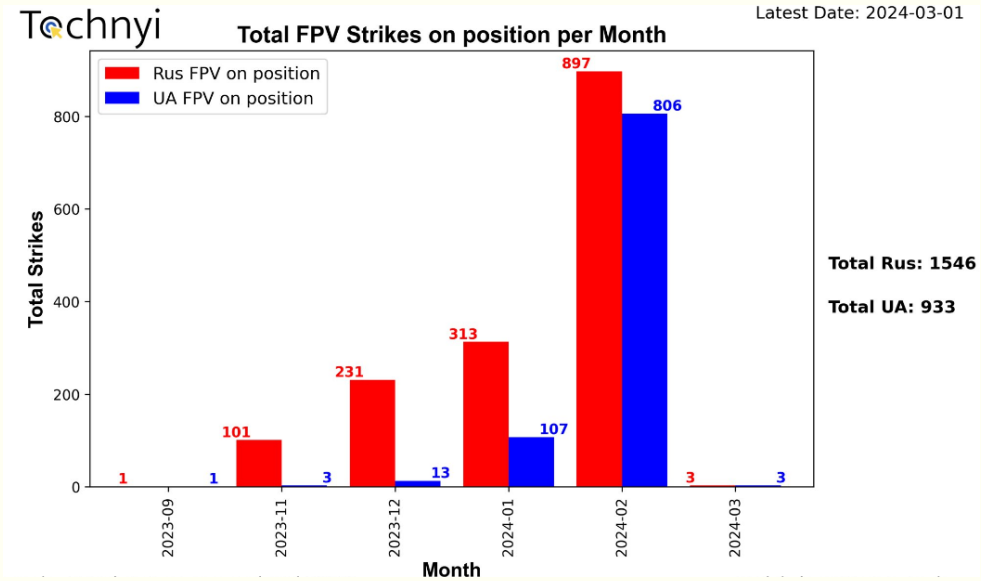
The crosspiece in the tail provide stiffness with little weight. Reuseable dolly for takeoff is similar to the RAAF's Jindivik aerial target drone of the 1960s.

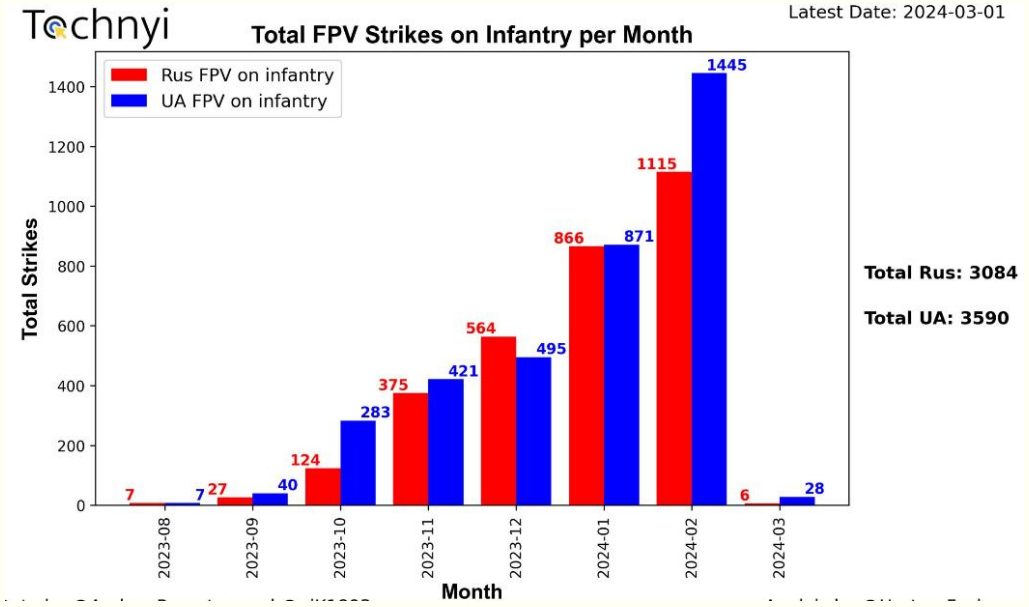
The speed of this design at 400 kmph will make it more survivable than propeller drones.

Australia should start making micro turbojets now.

Russia has pulled T-55 tanks out of storage in Siberia.
The prototype was produced in 1945 so now close to 80 years old.





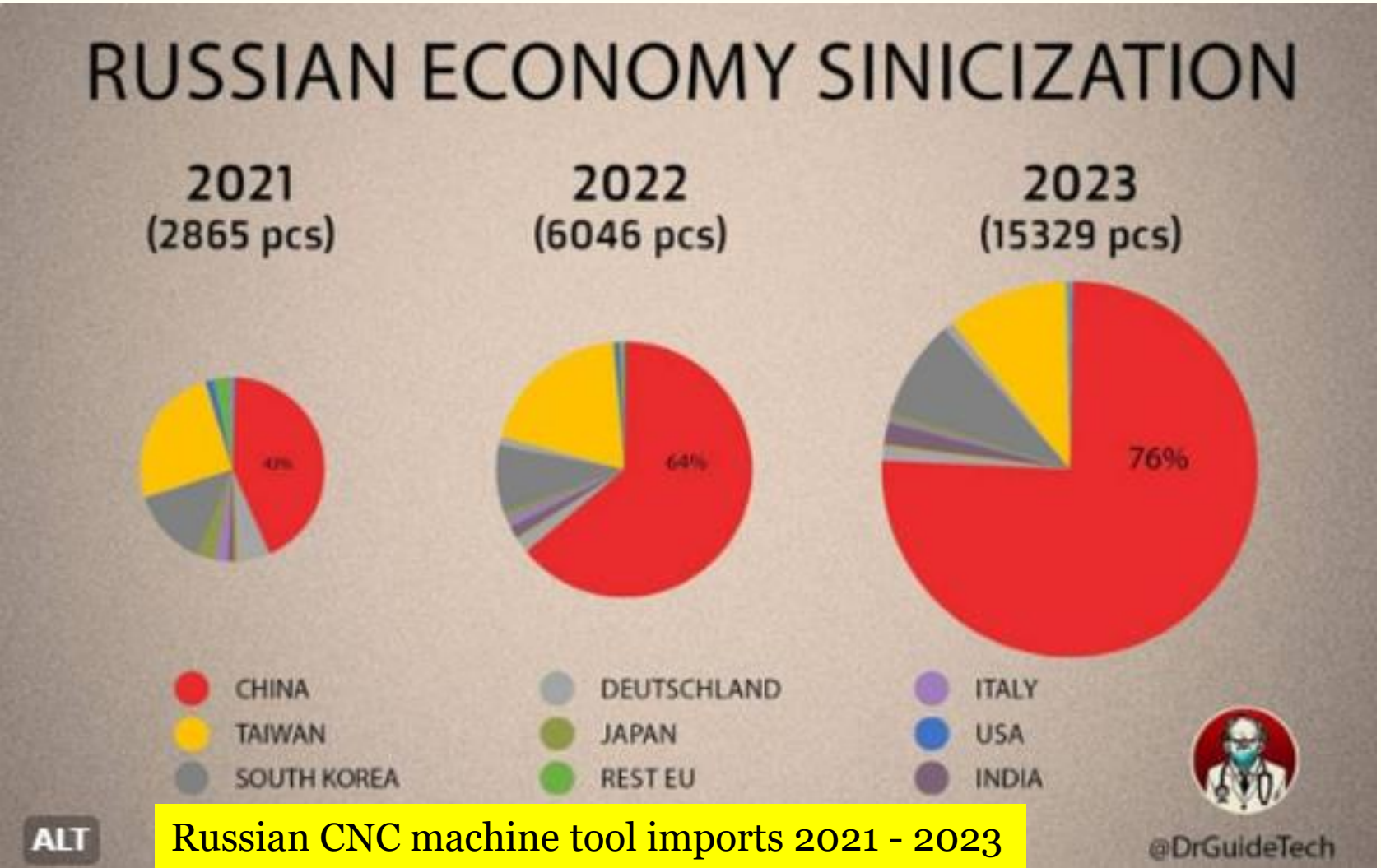


In terms of efficiency, in a number of aspects, drones have caught up with projectiles. In order to take out one dugout, you can fire 10 shells, or spend a couple of fpv drones.

Ukraine is now using 50,000 drones per month. Russia is much the same.

If you are going to start a war, get your industrial base sorted out first.

- Russian CNC machine tools imports are up more than five fold since the start of the war.



Russian CNC machine tool imports 2021 - 2023

Pressure injection of moulds is a cheaper way of making things than machining a block of metal.

Decoys soak up enemy ordnance

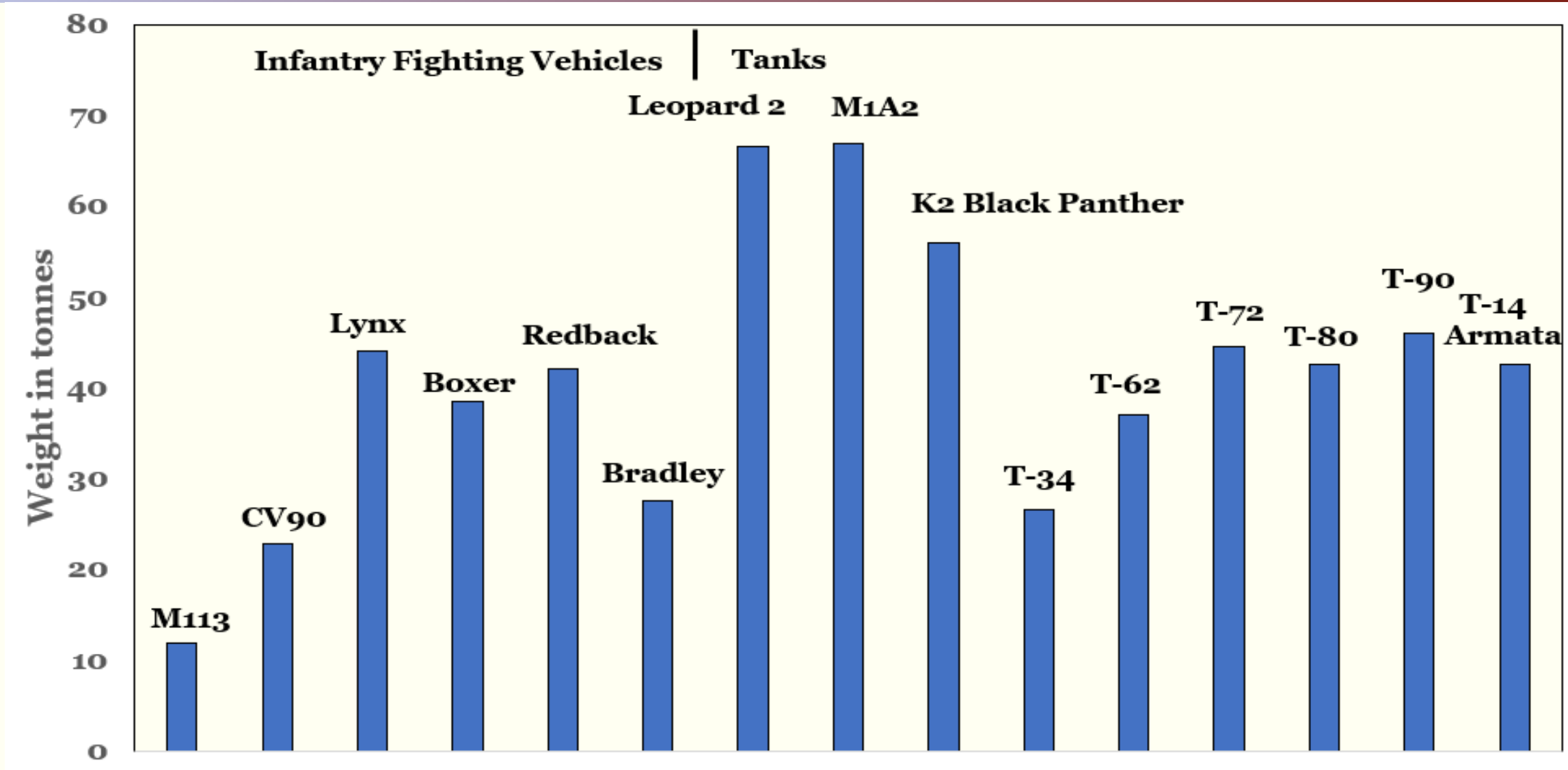
- the Russians thought they had captured a Sentinel radar system at Avdiivka.

- this one is made of plywood.

Reactive armour on a Bradley Infantry Fighting Vehicle

- defeats shaped-charge missiles

- 96 tiles in a set



On the subject of weight – the Redback weighs the same as the latest Russian main battle tank.

What is the US Marine Corps doing about China?

In 2020, the USMC decided that its main role is to support the US Navy and that the best way to do that would be to base small units on islands in the Western Pacific and fling missiles at the oncoming Chinese ships.

They have parked up all of their tanks and most of their tube artillery.

Survivability will come from having a minimal footprint and minimising electronic emissions, even taking the cabins from their trucks.

Unmanned Joint Light Tactical Vehicle firing a Naval Strike Missile from Kongsberg

This is a little missile made to fit in the bomb bay of an F-35 and thus has a short range.

Lessons from the Ukraine War

1. Land warfare is artillery – shells and missiles.
2. Tanks are necessary.
3. Infantry fighting vehicles (IFV) are necessary.
4. Tanks and IFVs need Active Protection Systems such as Trophy.
5. Dispersion is needed for survival.
6. Decoys soak up enemy ordnance.
7. Electronic warfare means that GPS needs inertial navigation system backup.
8. Precision reduces the size and thus vulnerability of the logistic tail.
9. Wheeled artillery is better than tracked is better than towed.
10. Cluster munitions are more effective against infantry than unitary rounds.
11. Systems countering drones need to be less expensive than the drones they are shooting down.
12. A operational reserve is necessary in order to be able to make the transition from attrition warfare to envelopment by maneuver.
13. Drones need to be defeated by a radar/optical system tied to directed energy systems – microwave and laser with 25 mm canon backup.
14. Don't get rid of your old tanks.
15. Helicopters and ground attack aircraft are too vulnerable to be worth having.
16. A lot of demining equipment is needed.
17. The United States cannot be relied upon to honour its commitments.

High Level Lessons from the Ukraine War

1. You don't need a navy to sink a navy
   - sea drones and antiship cruise missiles will do.
2. You don't need an air force to stop enemy overflight
   - a layered surface-to-air missile system will do that.
3. Artillery is still king of the battlefield
   - and artillery is still evolving
   - mass by precision by distance will win
   - with that provided by ground-launched glide munitions
4. Active protection systems solved the antitank guided missile problem
   - the drone threat will be solved by making that protection hemispheric
   - with further protection by dedicated vehicles
5. If you have nuclear weapons, don't give up nuclear weapons
   - and if you don't have nuclear weapons, acquire them.
6. Precision reduces your logistical tail and reduces enemy interdiction.
7. Decoys cost-effectively soak up enemy ordnance.
8. The United States cannot be relied upon to be consistent.

WATCH: John Kerry Says People Would 'Feel Better' About Ukraine Invasion if Russia Reduced Emissions

One further lesson from the Ukraine War:

Western countries are now run by the deranged.

In Australia, Net Zero is closing manufacturing industry.

An industrial base is needed to fight the Chicoms.

The moral base of Net Zero is based on the concept of global warming which has no basis in science.

We are not burning coal but at the same time are exporting it to China.

China is using Australian coal to make things to kill Australians. The historic analogy is Prime Minister Menzies sending pig iron to Japan prior to WW2. Menzies' bigger crime was making the wrong choice of fighter aircraft for the RAAF.

The Problems With Our Force Structure

Navy

1. We have an old, small surface fleet that is going to be irrelevant in the war with China anyway.
2. Our submarines are clapped out.
3. No way of plucking people from the ocean.
4. To paraphrase a line from *Macbeth*, the RAN has been 'a tale of idiocy, full of dithering and incompetence, producing nothing of significance'

Army

1. Budget cutting has reduced the force to a tiny size.
2. We are getting some missiles but are at the mercy of Lockheed and Raytheon.
3. No mines, no drones.
4. Bad culture in the command structure – incompetence and perversion in equal measure.

Air Force

1. We only have light bombers – F-35s and Super Hornets – and no proper fighter aircraft.
2. Indonesia could shoot down the RAAF three times over.
3. We need a force that can deliver antiship cruise missiles in mass.
4. As well as some real fighter aircraft.

Optimising Our Force Structure

Navy

1. We have to assume that our ships will be as easily sunk as the Chicom ships.
   - that once they are found they will be targeted by aircraft from up to 3,000 km away carrying long range antiship cruise missiles
   - the development of Soviet supersonic antiship cruise missiles drove the switch from CIWS to surface-to-air missiles to defeat the incoming antiship cruise missiles
   - once this stock is depleted on the ship, the ship is defenseless and has to return to port to restock the vertical launch tubes
   - all the world's oceans are now like the Mediterranean during WW2, constantly subject to attack by ground-based aircraft
   - US Navy tests found that swarming tactics worked against ship air defence systems
   - it takes an average of seven ASCMs to sink a ship
   - there will be no decisive fleet-on-fleet engagement
   - in surface warfare, we should have frigates designed around antisubmarine work.
   - we should go back to getting Japanese conventional submarines and take any nuclear submarines that do arrive.
   - we have no flying boats and so survivors of sinkings will die while waiting to be picked up from the open ocean

Australia's Department of Defence has a mental problem.

Arafura class OPV

Weight:	1,640 tonnes
Crew:	40
Main Gun:	25 mm

Redback IFV

Weight:	42 tonnes
Crew:	3
Main Gun:	30 mm

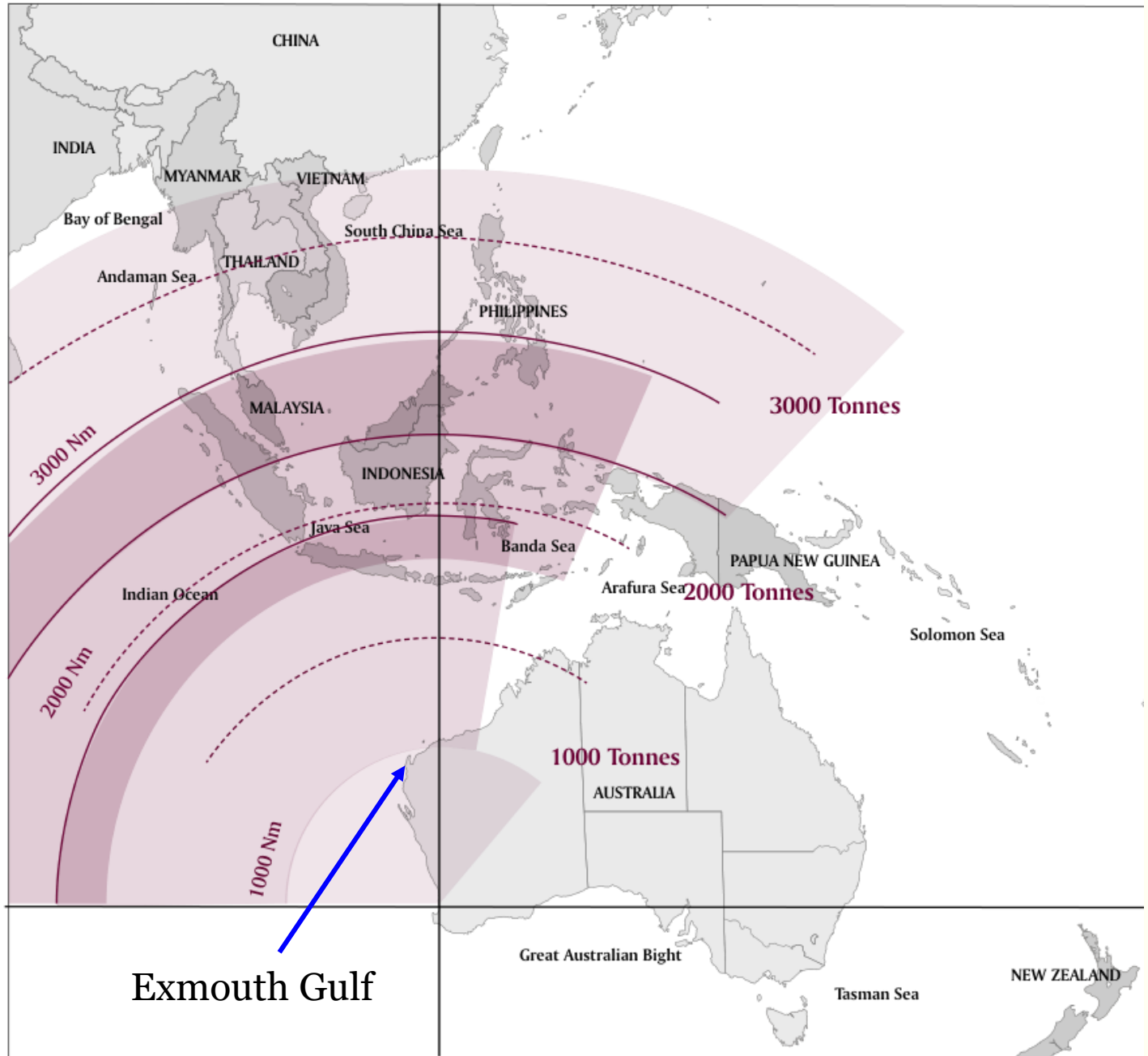
The profession of arms involves killing Australia's enemies and they would rather not. They would rather be running drag queen story hour at a petting zoo.

We will be fighting a maritime war without flying boats.

- Survivors of sinkings and aircraft downings will die on the open ocean.

Grumman Albatross being made by Amphibian Aerospace Industries in Darwin

- We need at least 50 of these. Australia could be getting the US-2 from Japan.



Some basing in our north would help a lot.

- in WW2, submarines from Fremantle would call into Potshot Base in Exmouth Gulf to refuel

- this added 1,800 km to their range

- and is a lot cheaper than increasing the tonnage of our submarines by 1,000 tonnes

1997 BOEING 737-300

Jet Aircraft

Price: **AUD $3,966,481**

(Price entered as: USD $2,700,000)

Financial Calculator

Aircraft Location:
Rolling Hills Estates, California, USA

Registration #: N73730
Total Time: 51,602
Total Landings: 33,350
Winglets: Yes

Return range of 2,700 km
Bomb load of 20 tonnes
For an average of $25 million

At one stage in the early 1980s the USAF was interested in saving money. So this proposal to use 747s to launch cruise missiles.

Then the feeling passed.

Can handle sea states up to 1.5 metres

- up to 90 km/h.

- cruise at 45 km/h.

Warhead: 860 kg
Range: 900 km

In early 2024, 35 Sea Babies were built for US$8 million which is US$229,000 each.
For US$1 million, these provide a good chance of sinking a US$300 million Chicom destroyer.


Maritime Drones In Russia-Ukrainian War, 2022-24
COVERT SHORES
www.hisutton.com
Only publicly known types. All illustrations provisional, approximate scale
UKR
Maritime drone
Ukrainian Navy
UKR
Magura
GUR
Magura V5
GUR
RUS
Dandelion
UKR
Marichka
UKR
Mamai
SBU
Sea Baby
SBU
Sea Baby-II
('Avdiivka')
SBU
UKR
Sonobot-5
(from Germany)
UKR
Toloka
TLK-150
RUS
Riverine USV
RUS
Sargan

Submarines versus Bombers

A submarine costing A$1,000 million (Taigai Class) will take a month to sail up to the war zone and back to deliver 24 torpedoes and if the trip is wildly successful, four sinkings say.

A converted 737 bomber will make one sortie per day and deliver 20 cruise missiles which result in three sinkings or mission kills. That makes 90 per month which is 22x what the submarine achieved for 2.5% of the capital outlay. And a fraction of the crewing. About 800 times more cost-effective in capital outlay.

And if the air-launched campaign is successful, there will be no targets left for any submarines.

The parallel with WW2 is the Mitsubishi G4M "Betty" which carried one torpedo with a ferry range of 5,040 km. Japan built 2,435 of them.

The P-8 maritime patrol aircraft is based on the 737 airframe and drops torpedoes amongst other things.

737 Bombers versus the B-21

The B-21 is about ¾ the size of the B-2 so might have a bomb load of 15 tonnes.

The B-21 can unload its bombs/cruise missiles closer to the target but only at night.

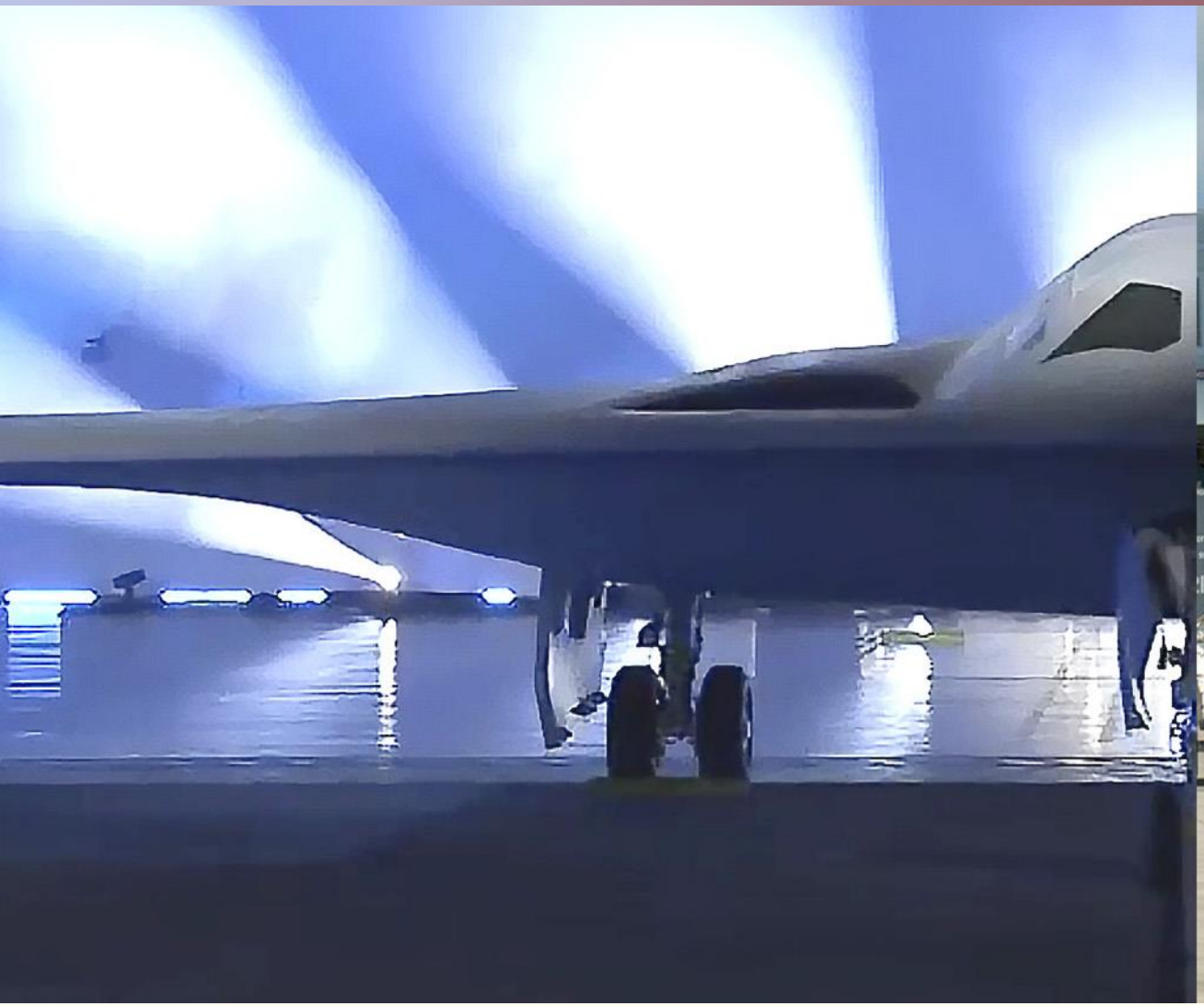
The B-21 costs A$1,000 m. and might cost $120,000 per hour to operate, based on the B-2 operating cost of $170,000 per hour.

The 737 costs $12,000 per hour to operate but launches its cruise missiles a further 400 km out from the danger zone.

The B-21 has a capital cost per daily missile launch of $67 million while for the 737 bomber it is $1.3 million.

The B-21 has a operating cost per missile launch of $67,000 while for the 737 bomber it is $3,600.

The B-21 is a relic from the era of free-fall nuclear bombs.



B-21
2022

B-2
1989

Our bomber fleet in being?
Alice Springs aircraft storage

Army – Incompetence and Perversion in equal measure

'I'm opting for female uniform': Non-binary soldier's dress change for Defence

An Australian soldier may spark landmark changes to military uniform rules after senior officers backed a former male captain's bid to wear the female dress.

This is an army captain in the Northern Territory.

Note that senior officers backed his bid to wear a dress to work. The reverse is also true - normal people are suppressed.

How do they expect any troops under his command to take him seriously?

The senior staff of the Australian Defence Force live in a fantasy world.

Gender dysphoria is a well-characterised mental illness with a 50% suicide rate.

But this is encouraged. And it gets worse.

Transvestic fetishism is a psychiatric diagnosis applied to men who are thought to have an excessive sexual or erotic interest in cross-dressing; this interest is often expressed in autoerotic behavior. It differs from cross-dressing for entertainment or other purposes that do not involve sexual arousal. Under the name **transvestic disorder**, it is categorized as a paraphilia in the DSM-5.[1]

The implications of the infamous Brereton Report

See this paragraph from page 120:

> c. Clearance Operations. Dr Crompvoets was told that, after squirters were *'dealt'* with, Special Forces would then cordon off a whole village, taking men and boys to guesthouses, which are typically on the edge of a village. There they would be tied up and tortured by Special Forces, sometimes for days. When the Special Forces left, the men and boys would be found dead: shot in the head or blindfolded and with throats slit.

The implication was that there are a lot of villages in Afghanistan with only women and girls left because Australian soldiers killed all the males. But no such village was named in the report. And none have been found since.

The fact that the Department's senior management believed the Brereton Report means that they have no understanding of the troops they are commanding, and precious little grip on reality otherwise.

And most likely loathe the troops under their command.

Brereton couldn't get the stories on atrocities that he wanted until he started paying Afghans to tell them.

Beyond incompetence is yet more derangement – the saga of the Taipans.

In 2004, the Army wanted Apache helicopters but Howard opted for the Airbus offering because Airbus promised $1 billion in offsets, which never materialised. Called the Taipan in Australian service, we ended up with 45.

Twenty years later, the Army is getting Apaches.

The second hand Taipans would have been worth $20 million each and thus $900 million for the lot.

Instead of selling them for $900 million or giving them to Ukraine, the Army has pulled the rotors off and is burying them in a pit.

In psychological terms, this is an example of an Antisocial Personality Disorder based in spitefulness and malicious compliance. Everyone in this saga up to the Prime Minister is complicit.

Army

A big army is not wasted.

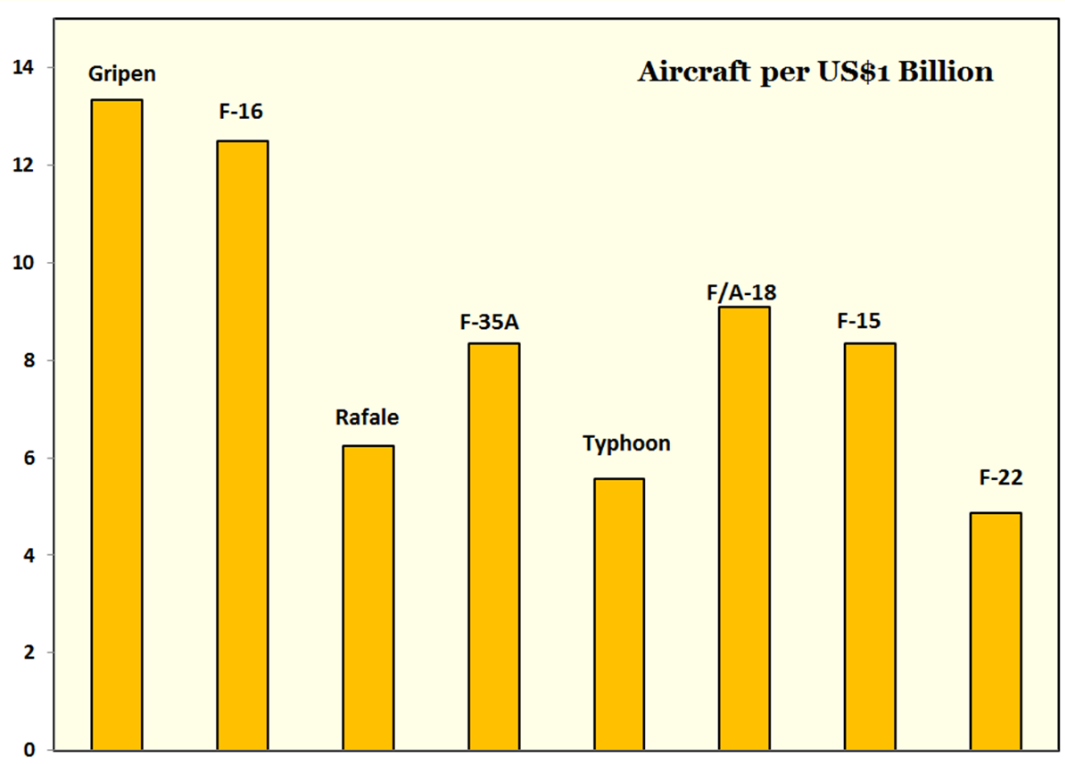
- if we have only one combined arms brigade, China only has to land three.
- if we have 25 combined arms brigades, China has to land 75 and this force will be much easier to defeat at sea.
- nothing we produce in the next few years will be wasted - so go flat out in production and stockpiling.
- the parallel with WW2: Chamberlain signed the Munich Agreement but took defence spending to 8% of GDP.
- increase the Redback IFV production run to the original 1,100 as a starter.
- buy from the South Korean production line to get mass early.
- similarly produce the Boxer CRVs flat out until the war starts.
- select a wheeled Self-Propelled Howitzer and make it in Australia.
- park up the Abrams tanks and buy the K2 Panther tank from South Korea instead.
- plan on building the land force to 25 combined arms brigades with plenty of additional light infantry units.
- restart the Bushmaster line in Bendigo
- put the 155 mm artillery shell line in Maryborough on three shifts to produce 100,000 shells per annum and start another production line elsewhere in Australia.
- produce rifles at Lithgow Small Arms Facility to take our rifle stock to at least 500,000
- design and produce a mine-clearing vehicle in Australia
- make the Korean Chunmoo system and missiles in the 400 mm variant (400 km range) with high explosive, cluster and thermobaric warheads under licence.

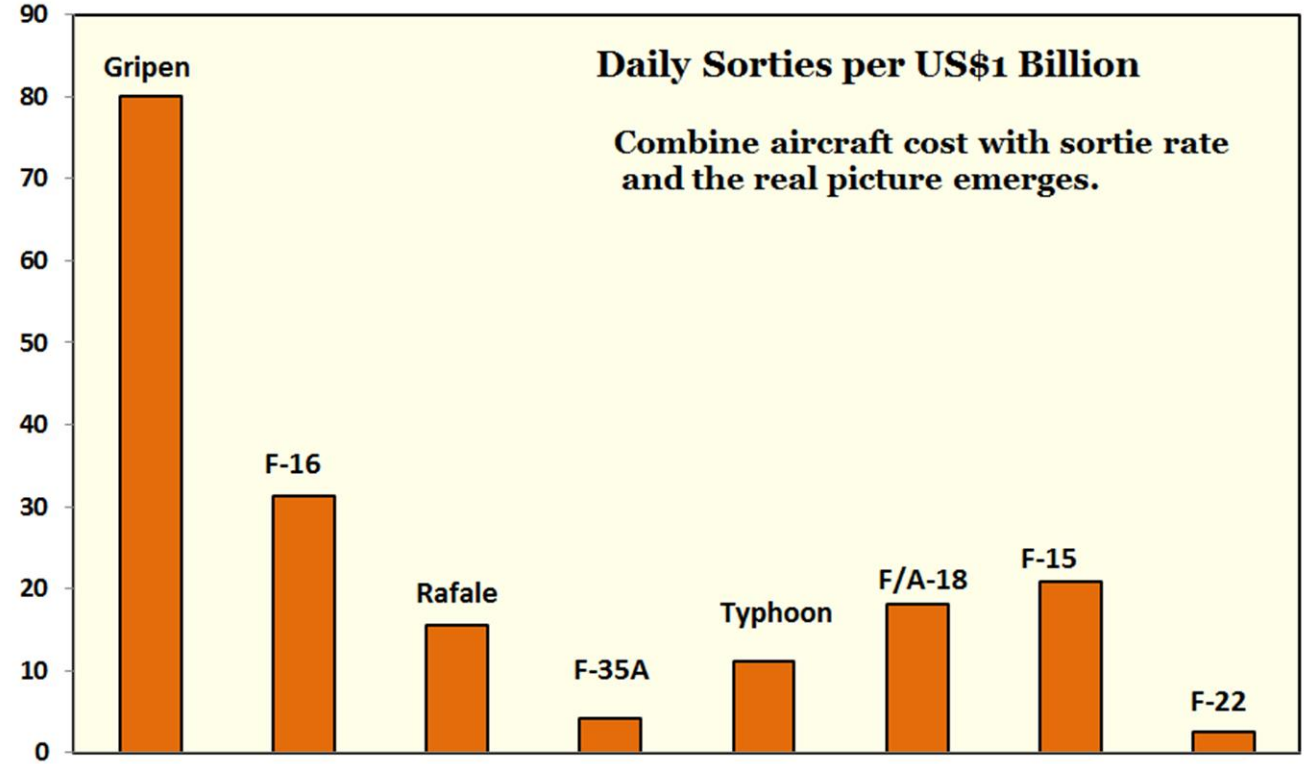
Army continued

- Design, test and produce ground-launch glide munitions in high explosive, cluster, thermobaric and smoke variants. Ideally these will be packed in a 20 foot container so that any truck with a tray long enough can be used to launch them. This also provides the potential that the forward observer need be the only man-in-the-loop.
- licence-produce the Polish Piorun manpad.
- licence-produce the Ukrainian Stugna-P antitank guided missile.
- design and produce a GPS/INS system for Australian missiles.
- design and produce a sub-calibre, GPS/INS-guided 155 mm round to increase the range of artillery as a cost-effective alternative to glide munitions launched by rocket motors.
- the Army needs its own airlift capability – ideally the C-295 produced under licence in Australia.
- design and make a one-way drone based on Ukraine's battlefield experience.
- based on Ukraine's battlefield experience, design and build a vehicle-mounted anti-drone electronic warfare kit.
- make and stock antitank and antipersonnel mines in Australia

Air Force

- the nickname of the F-35 in the US Air Force is 'Fat Amy' – meaning that its pilots consider it to be a wallowing, useless thing that is mostly harmless.
- With its 42 Rafales and 24 F-15EX, the Indonesian Air Force is now technically superior to the RAAF. We can now only hope to match them technically and achieve dominance from mass.
- buy the parked-up Gripen C & D of the Swedish Air Force and add the Arexis electronic warfare kit.
- build the Gripen E in Australia under licence and build to a force of 300 aircraft.
- acquire a stock of Meteor missiles, some with the radar seeker head and some with the thermal seeker of the IRIS-T.
- task the Super Hornets to launching antiship cruise missiles.
- park up the F-35s.
- buy used Boeing 737s and convert to use as bombers.
- produce antiship cruise missiles in Australia under licence of Korean, Japanese, Taiwanese, Indian or Israeli designs.
- use the knowledge gaining in making the Ghost Bat to make drones optimised for penetrating Chinese radar systems, as in the X-47B, or general delivery of ordnance in the manner of the XQ-67A.



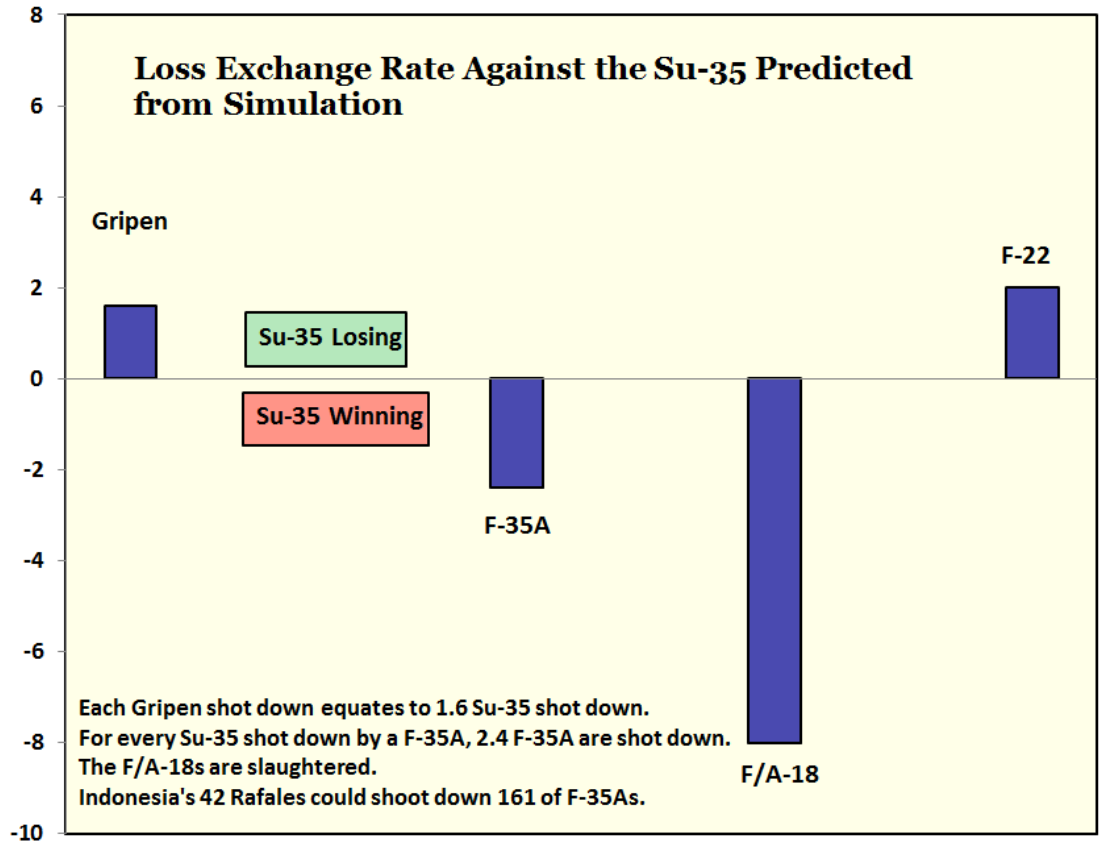


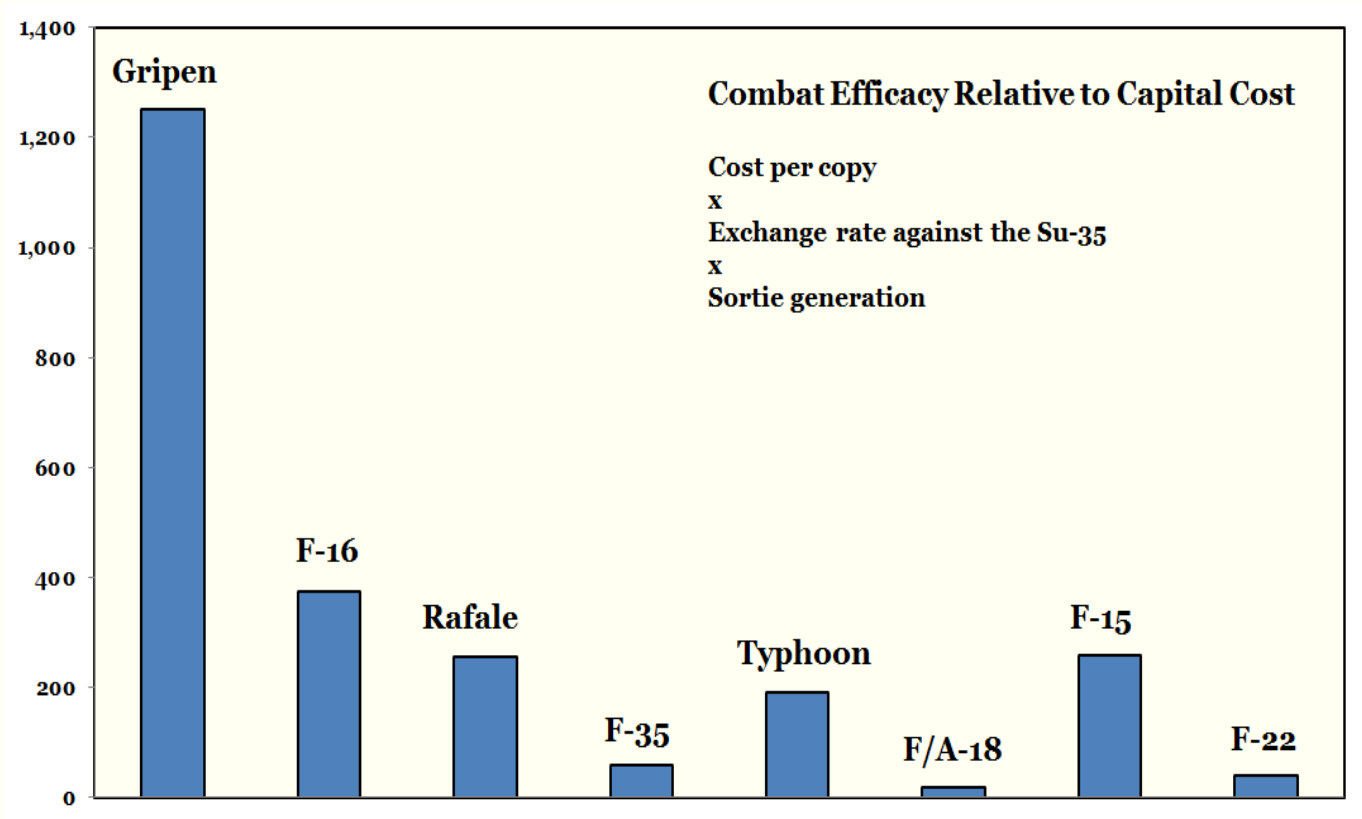
A good path to air superiority is to get more aircraft, of equal capability, for the same outlay.

- the Gripen, Rafale, Typhoon and F-22 are all highly capable.
- the electronic warfare suite of the F-15EX is US$15 million per aircraft.

The Gripen can be turned around in 15 minutes by conscripts led by a sergeant.

- the F-35 might get airborne every second day
- avionics components tend to produce cycle-related failures, whereas hydraulic pumps fail in relation to the hours of use that they have accumulated



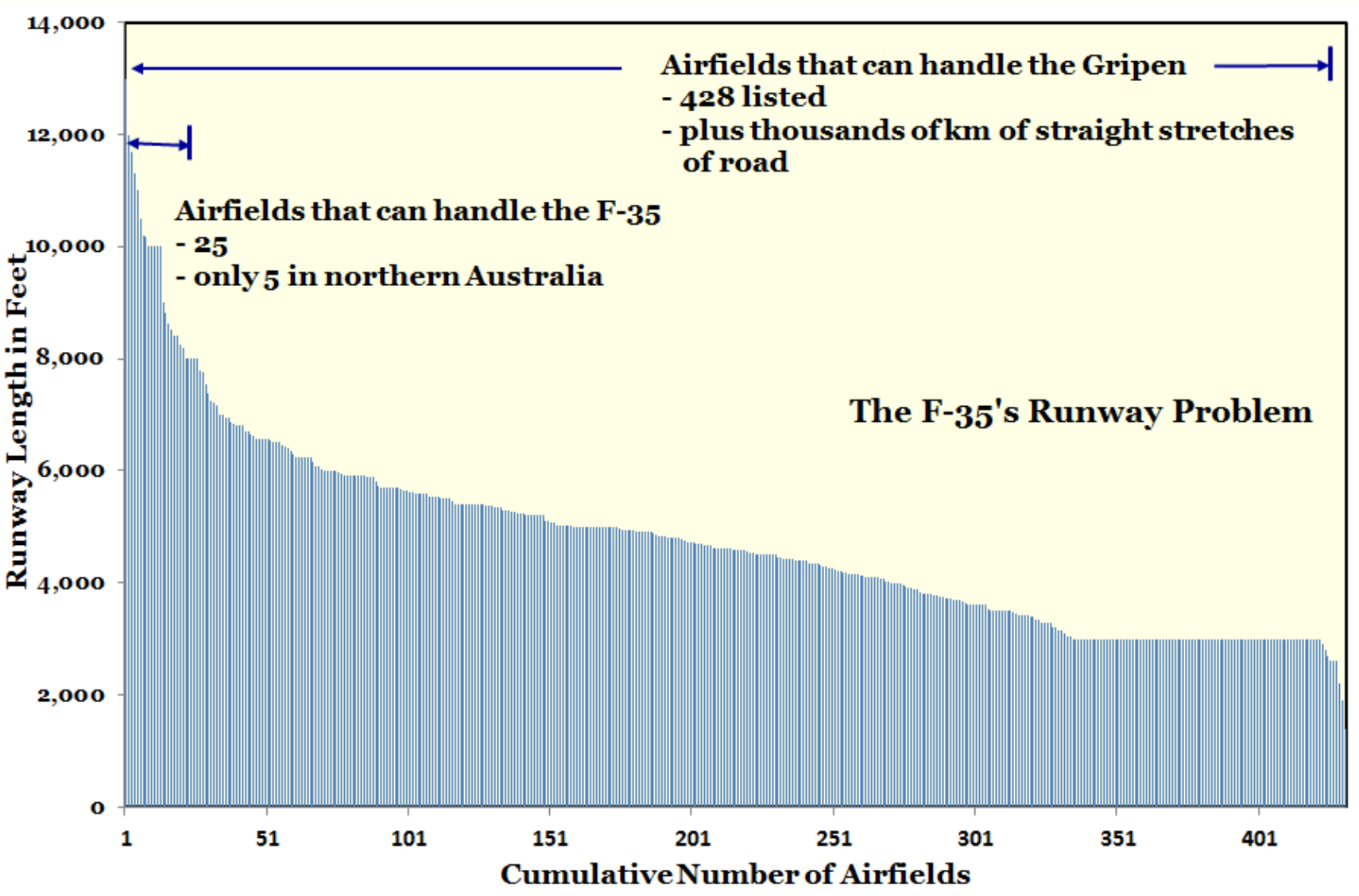


The Gripen E shoots down the Hornet at the rate of one Gripen E lost for 20 Hornets shot down.
Data from Air Power Australia.

A dollar spent on the Gripen is 21 times more effective than a dollar spent on the F-35.

And then factoring in the fact that the Gripen has twice the availability of the F-35 blow that out to 42 times.

Basing – not a trivial consideration



Don't underestimate the value of operating from short airstrips.

RAAF Williamtown was extended to 10,000 feet to support the F-35 because of its poor performance.

How many 10,000 ft airstrips are there in our region?

Gripen was designed to operate of short, icy roads so it needs about 800 metres of 16 metre-wide road.

There are about 350 Fokker Friendship-class airstrips across Australia and in the nearby islands.

The Gripen can operate from these - the F-35A cannot.

Heat management is a big problem for the F-35.

When flying below 20,000', the F-35 has to open its bomb bay doors every 20 minutes to let the heat out.

Because its innards are packed tighter than a head of cabbage.

Yes the F-35's bomb bay does cook the electronics of the weapons within it.

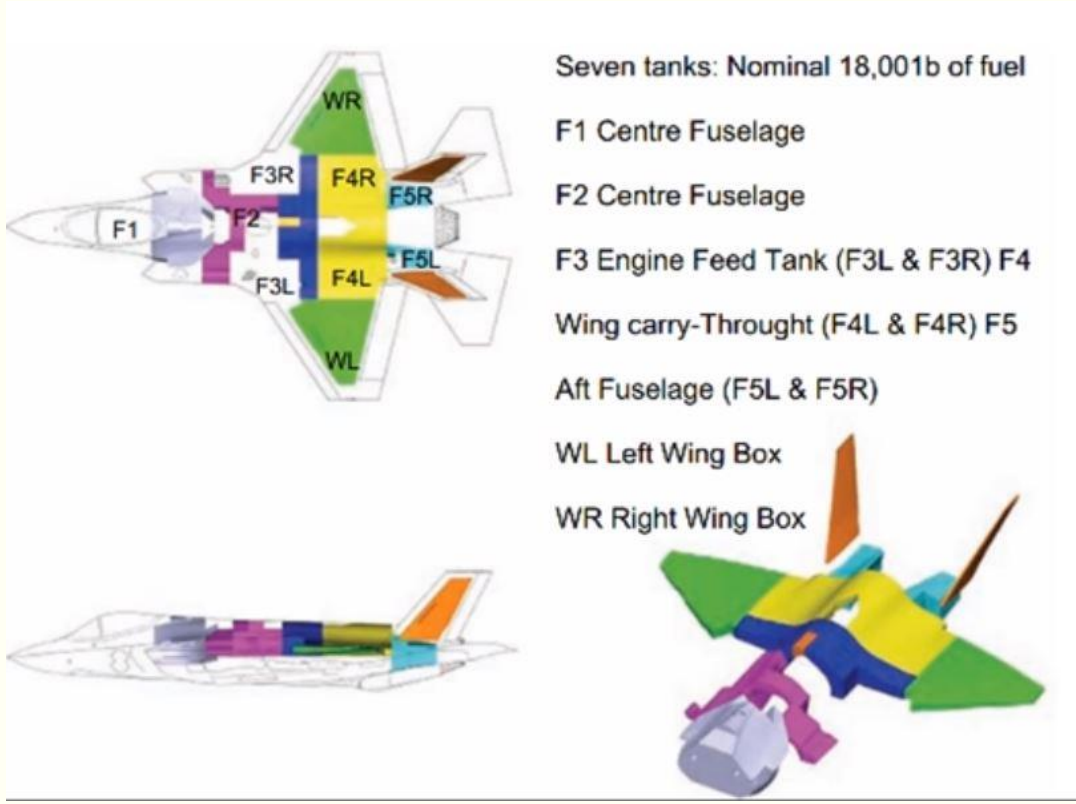
F-35s on the tarmac at Tindal in the Northern Territory have refused to turn on because the fuel was too hot. The fuel is used as a coolant.

Note that under Avionics, thermal management in the bomb bay of the F-35 is noted as a problem that needs to be addressed.

More on the F-35

1. Software upgrades on the F-35 are very difficult because the avionics were not separated from the weapons systems.
2. The gun is useless - all other fighters have higher sustained turn rates than the F-35. Also useless in air-to-ground – inaccurate and the F-35 flies like a rock with tiny wings, thus must pull out of a strafing run before getting close.
3. There is no date set for the Initial Operating Capability test – may not go into main production. The existing fleet will be orphans.
4. The USAF is buying perhaps more than 400 F-15EX because of its lower operating cost.
5. The Israeli Air Force was given F-35s but wants to buy more F-15s.
6. Internal payload is incapable of carrying large enough missiles to compete with the upcoming competition – more like the glove compartment of a Ferrari.

Why the F-35 will burn as soon as it is hit



Fuel tanks of the F-35

Every nook and cranny has fuel stuffed in it. - it is the Mitsubishi G4M of the modern era.

Yet more on the F-35

1. The aircraft is called "Fat Amy" by the actual pilots for a reason.
2. It's of little value an air to air superiority aircraft as it carries almost no missiles in its stealth configuration.
3. The gun is useless, as attempting to fire it creates massive amount of drag on the gun's side of aircraft, pulling it off target.
4. It's of low value as a strike craft because of its extremely poor air time to maintenance time ratio and extremely low payload capacity in stealth configuration.
5. It's sole area of actual expertise is as stealthy heavy reconnaissance and light strike aircraft. Just ask Israelis, who use it exclusively in this exact role.
6. For heavy strike they use F-16 and the F-15 for air to air work, which are far superior to F-35 in those niches.

The problem of refueling the F-35

In the words of a pilot:

The F-35 is so limited in the rate at which it sucks in air-to-air refueling that it takes a flight of four almost 30 minutes to finish completely refueling each one from a KC-135, KC-10 or a KC-46.

The pilots say that to fully refuel your flight of four, send No 4 home before you start.

Why? Because the F-35 has 11 internal fuel tanks with a computer-controlled ultra-complex pumping system for transferring fuel among the 11 to keep the F-35's very tight center-of-gravity limits within safe controllability specs.

That Rube Goldberg plumbing makes it impossible to transfer fuel at a rate faster than 6 to 7 minutes to fully fuel the F-35, far slower than F-16s, F-15s, F-18s and F-22s.

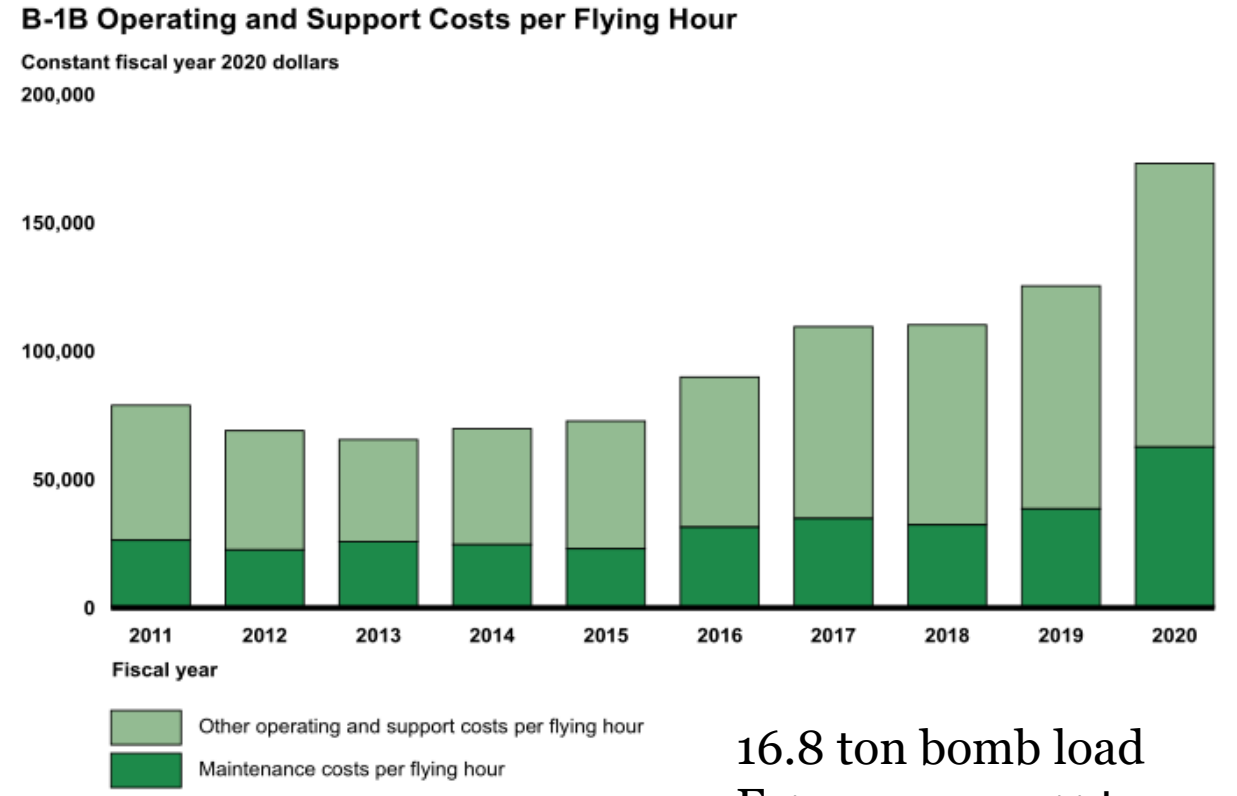
Some mission capable rates

	2007	2021	Drop
USAF			
F-35A		69%	-
F-22	59%	51%	-8%
F-15E	75%	66%	-9%
F-15C	80%	69%	-11%
F-16C	83%	72%	-11%
A-10	75%	73%	-2%
French Air Forc	**2016**	**2018**	
Rafale	49%	54%	
Royal Air Force		**2019**	
Eurofighter Typhoon		65%	

MISSION CAPABILITY RATES OF SELECT U.S. AIR FORCE AIRCRAFT

Airframe	FY20 Mission Capability		FY21 Mission Capability
F-35A *	71.40%	▼	68.80%
KC-46A	66.53%	▲	71.37%
B-1B	52.78%	▼	40.69%
CV-22B	54.21%	▼	50.95%
F-22A	51.98%	▼	50.81%
C-130H	70.02%	▼	69.49%
T-1A	68.43%	▲	74.03%
MQ-9A	90.77%	▼	89.91%
RC-135W	81.03%	▼	66.42%
HH-60G	68.99%	▲	71.06%

Maintenance costs for an aircraft rise at 2.5% per annum.
The contract specification of availability for the F-35 is 65%, which it falls well short of.
The availability of the Gripen is in excess of 80%.



16.8 ton bomb load
F-15 can carry 11 tons

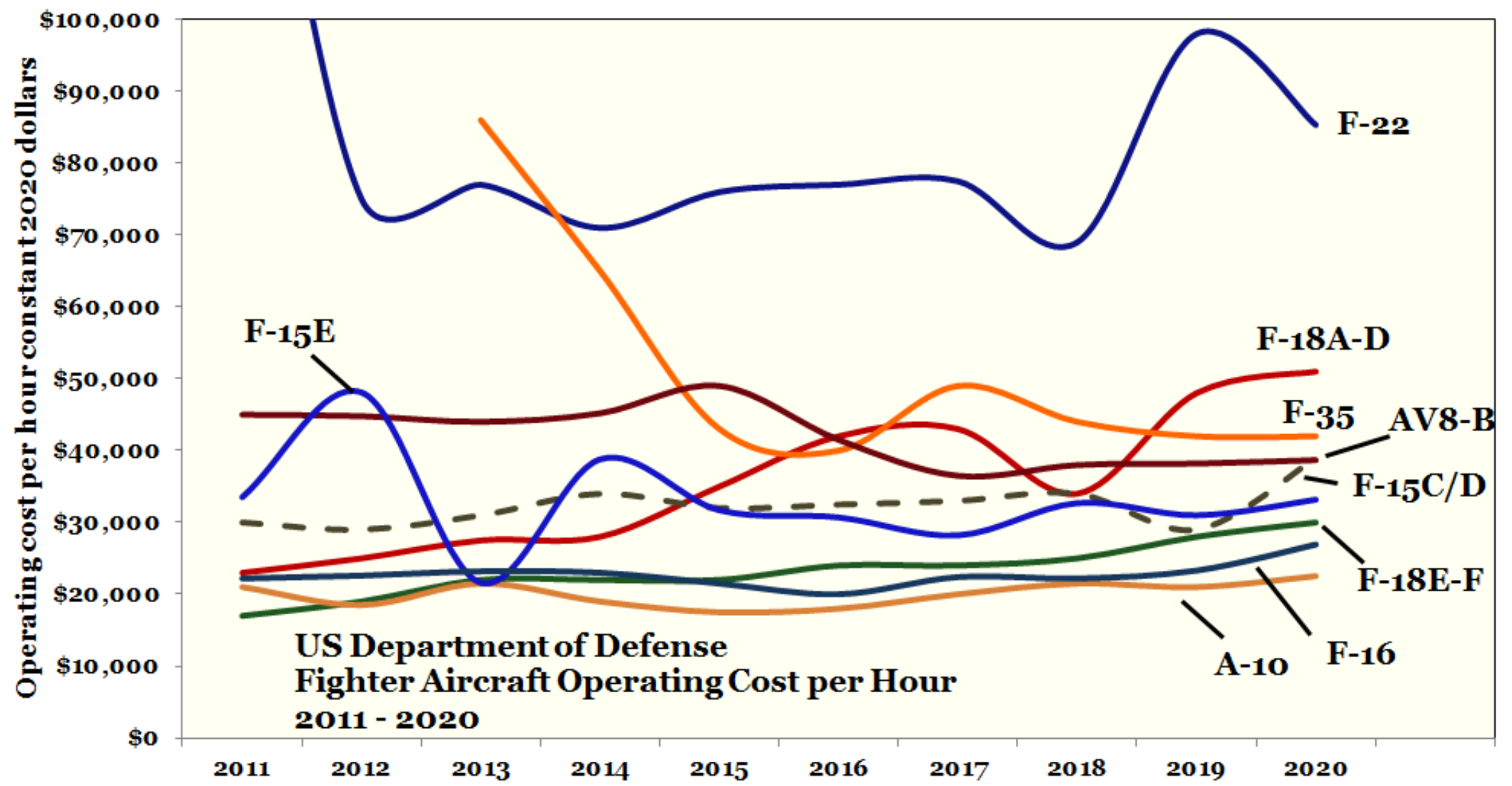
US Fighter and Bomber Operating Costs per Hour in 2020

Type	Total Fleet	Average Age in Years	Total Costs per Flying Hour 2020	
Fighters				
F-35A	231	3.8	$41,986	
AV-8B	77	24.5	$39,029	
A-10	281	40.4	$22,531	
F-15C/D	234	37.2	$38,668	
F-15E	218	29.5	$33,177	
F-16	936	31	$26,927	
F-22	186	14	$85,325	
F/A-18A-D	305	28.2	$50,810	
F/A-18E/F	530	13.5	$30,404	
Bombers				
B-1B	62	34.1	$173,014	16.8 tonnes
B-2	20	27.2	$150,741	18 tonnes
B-52	76	61	$88,354	31.5 tonnes

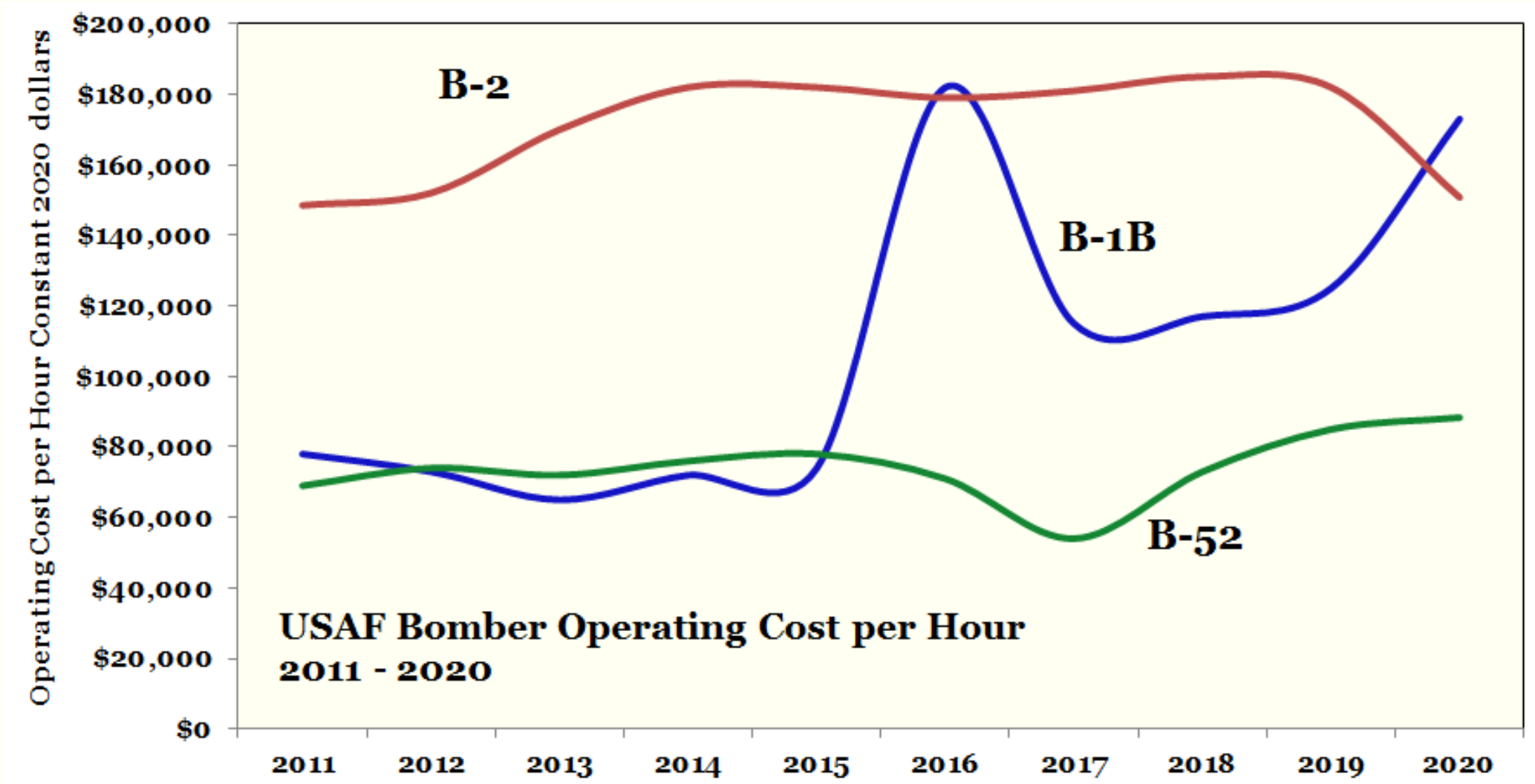
And then sometimes operating costs rise faster than 2.5% er year.

The average age of a B-1B aircraft in late fiscal year 2021 was over 34 years, which exceeds its original structural design life of 30 years.

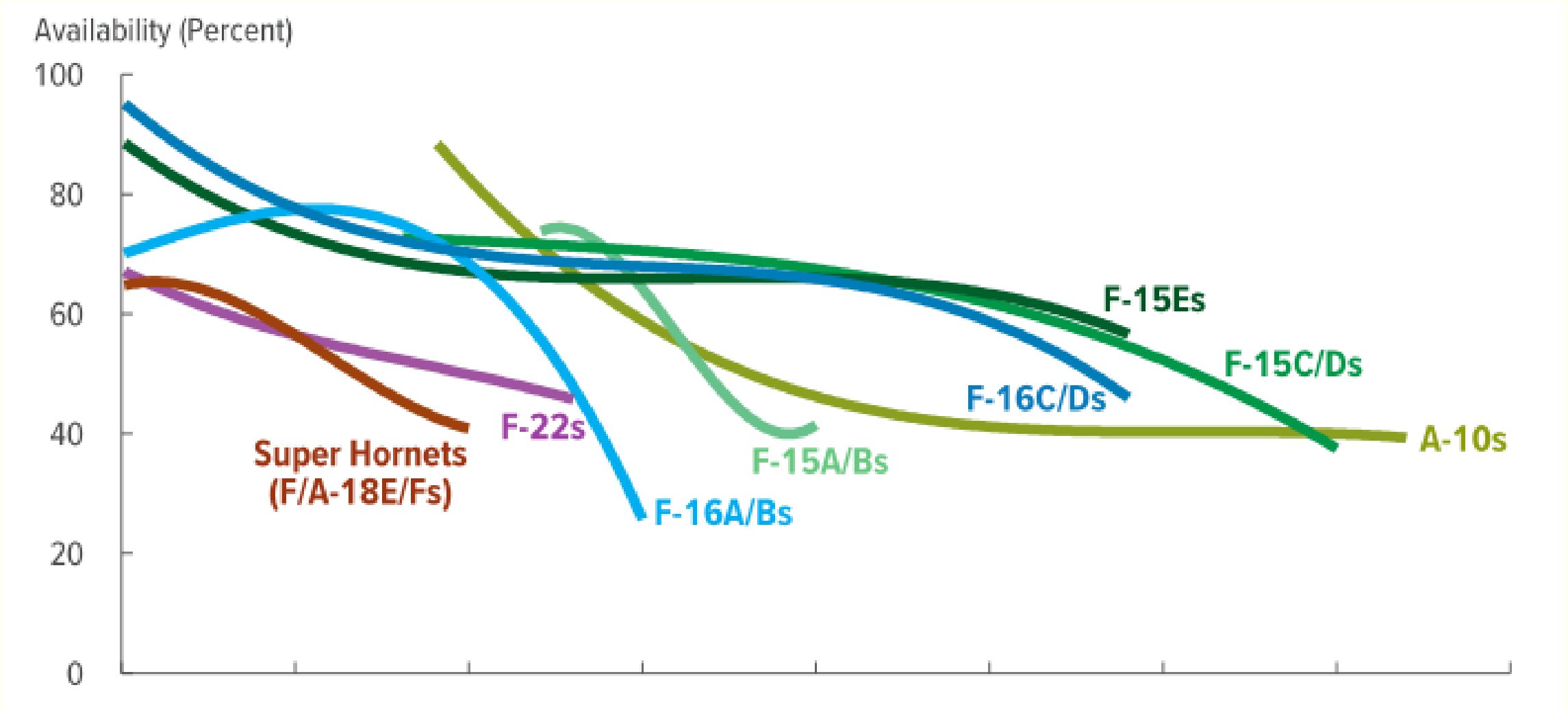
The average age of the fleet in 2020 was 26.6 years.
Operating costs are accelerating due to age.
With a high starting operating cost per hour, the F-35 will cost US$144,310 per hour in 2070 – believable given what has happened to the B1-B



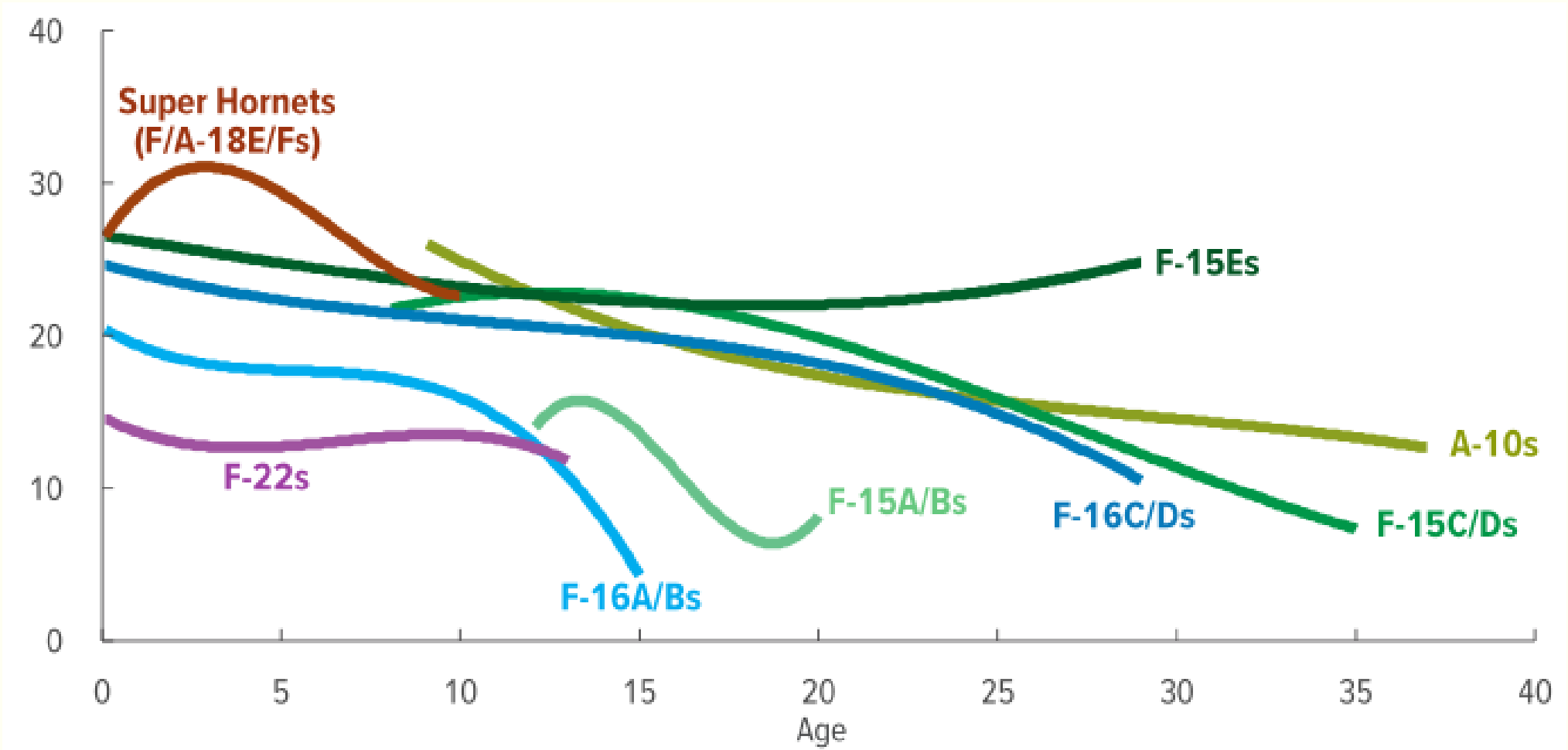
The F-22 is self-defeated due to its RAM coating; F-18A has come through the pack due to carrier landings?; F-16 still holding up.



The B-1B is flying into the sunset; the F-15EX can carry 81% of its bomb load at one sixth the operating cost with a much smaller radar cross section.



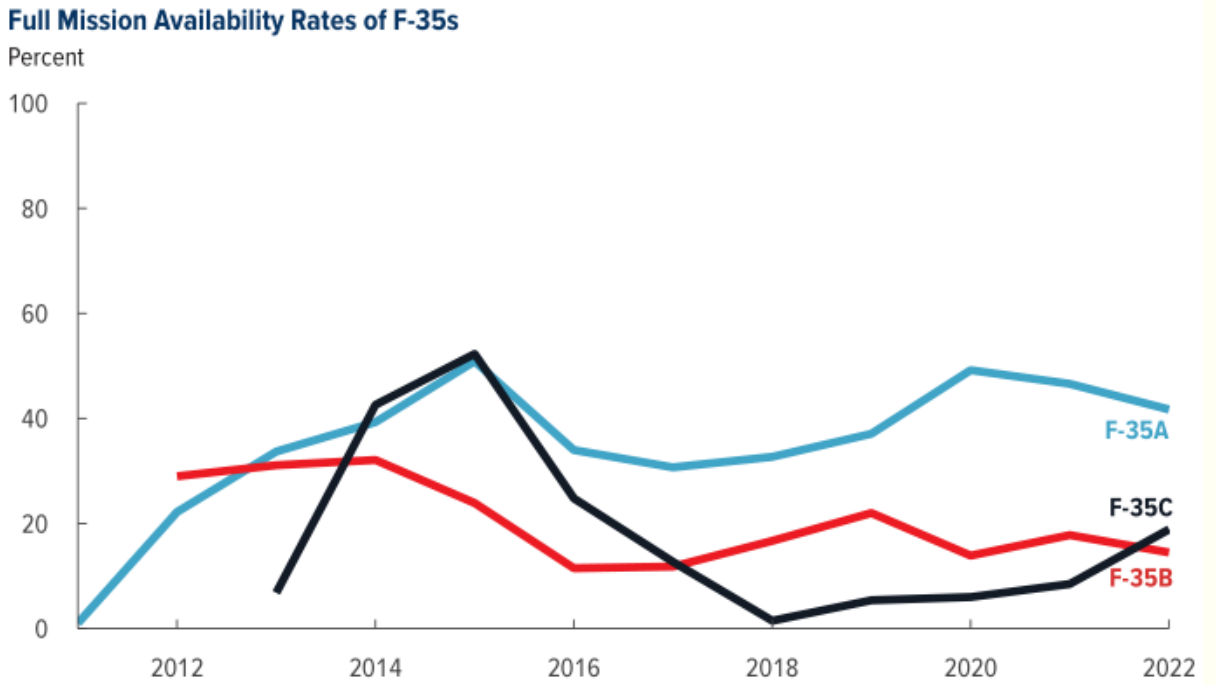
Comparing Super Hornet availability against USAF aircraft, by age
- the Super Hornets are dying earlier

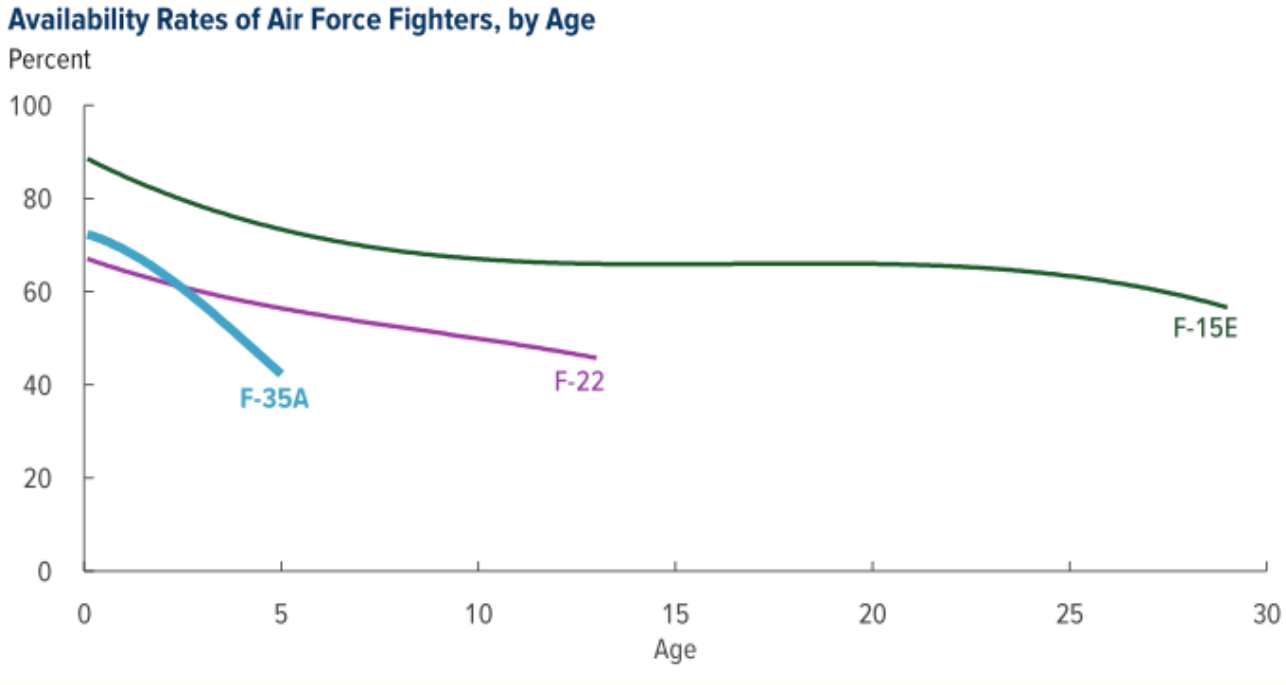


Comparing Super Hornet flying hours per aircraft per month against USAF aircraft

- Flying hours are constrained by the budget for that aircraft type, so as operating cost per hours go up, hours go down.
- 20 hours per month are required for pilot proficiency.

The Congressional Budget Office and the Government Accountability Office are trying to warn us.

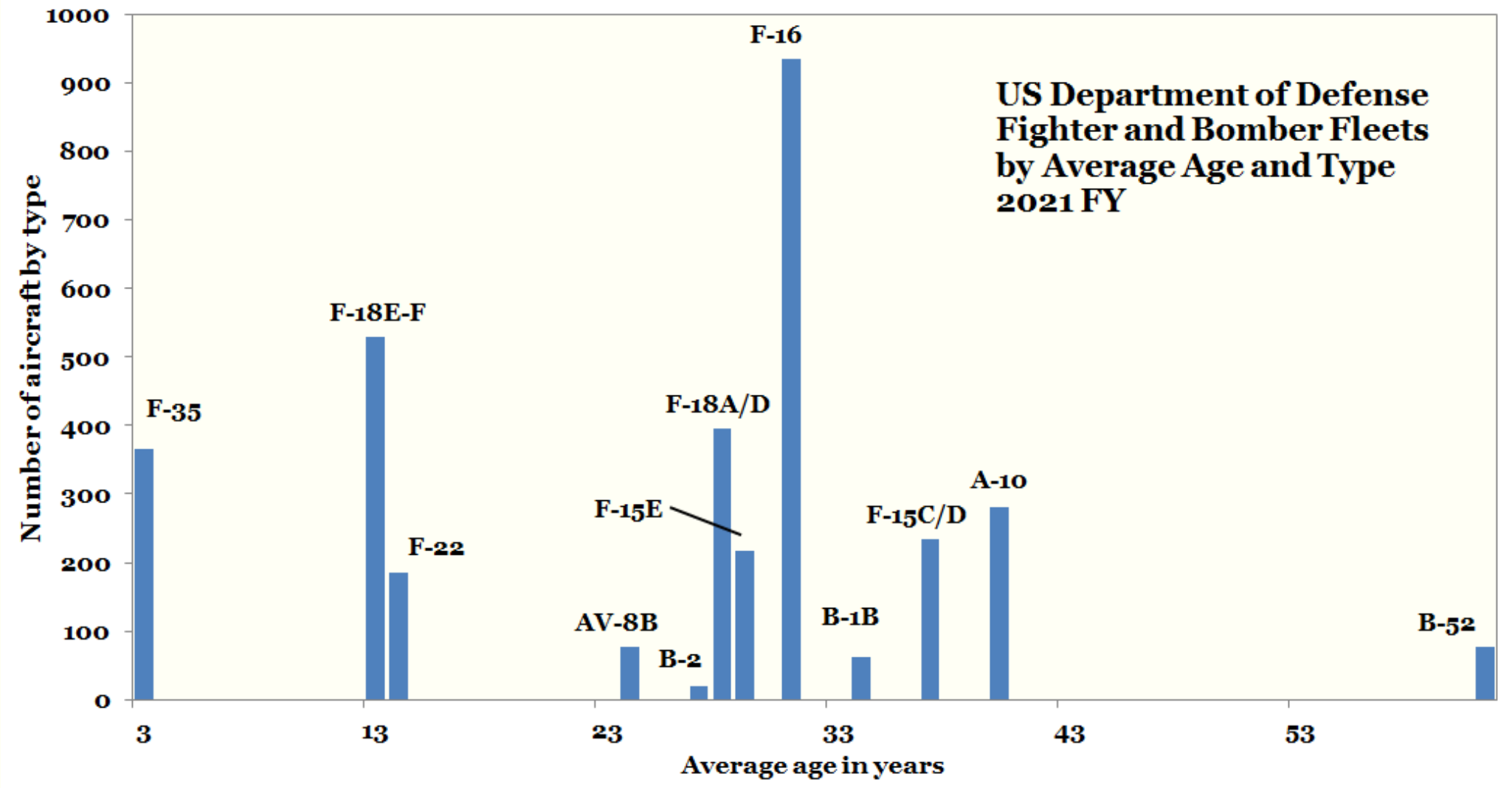




The F-35C and F-35B are deader dogs than the F-35A which is only Full Mission Capable only 40% of the time – source Congressional Budget Office.

One clue is how the F-35 stacks up against other fighters at the same age - and it doesn't look good.
It's in a death dive.

The peace dividend and failure to kill the F-35 have caused the US fleet to age out.



The Original Sin of the F-35

- the F-35B in the infrared

The design of the F-35 was compromised so that one variant could do this - suck in a lot of still air at full afterburner and support the weight of the aircraft on a pillar of fire.

Born of a Yak

The F-35's Granddad is the Yak-38

The first vertical takeoff plane to fly supersonic was the Yak-141 of the Soviet navy.

Lockheed entered into a collaboration with the Yakovlev Design Bureau and the Yak-141 flew at Farnborough in 1992. The F-35 flew at Farnborough in 2016

The Death Throes of the F-35

The F-35's original sin – the compromises for the B variant.

Engine version or why the RAAF will need a new fighter sooner than it thinks.

We know so far that the F-35 drinks fuel 18% faster, per pound of thrust produced, than the engines of other fighters.

This is due to the narrow stoichiometric fuel to air ratio.

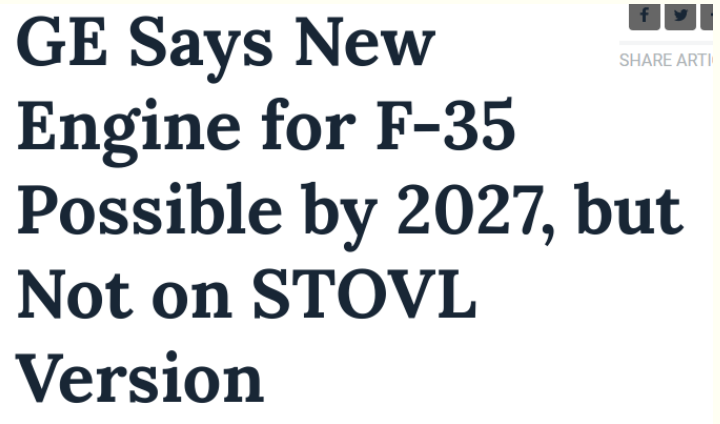
But to maximise performance in order to get the power to weight ratio necessary for vertical takeoff, Pratt and Whitney also made the engine run hot.

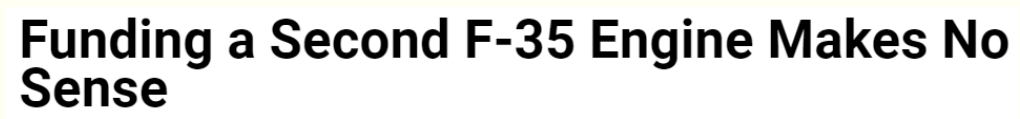
The turbine inlet temperature of the F119 engine that powers the F-22 fighter is 1,649°C.

In the F135 engine it is 1,982°C. The turbine blades downstream from the combustors in the engine are made from a nickel-based alloy that starts softening and melting at 1,427°C. The blades are kept from melting by air forced through a network of holes.

The first flight of the F-35 was in 2006. But something has changed.

In August 2021 headlines started appearing saying that the F-35 needs a new engine, without telling us why:

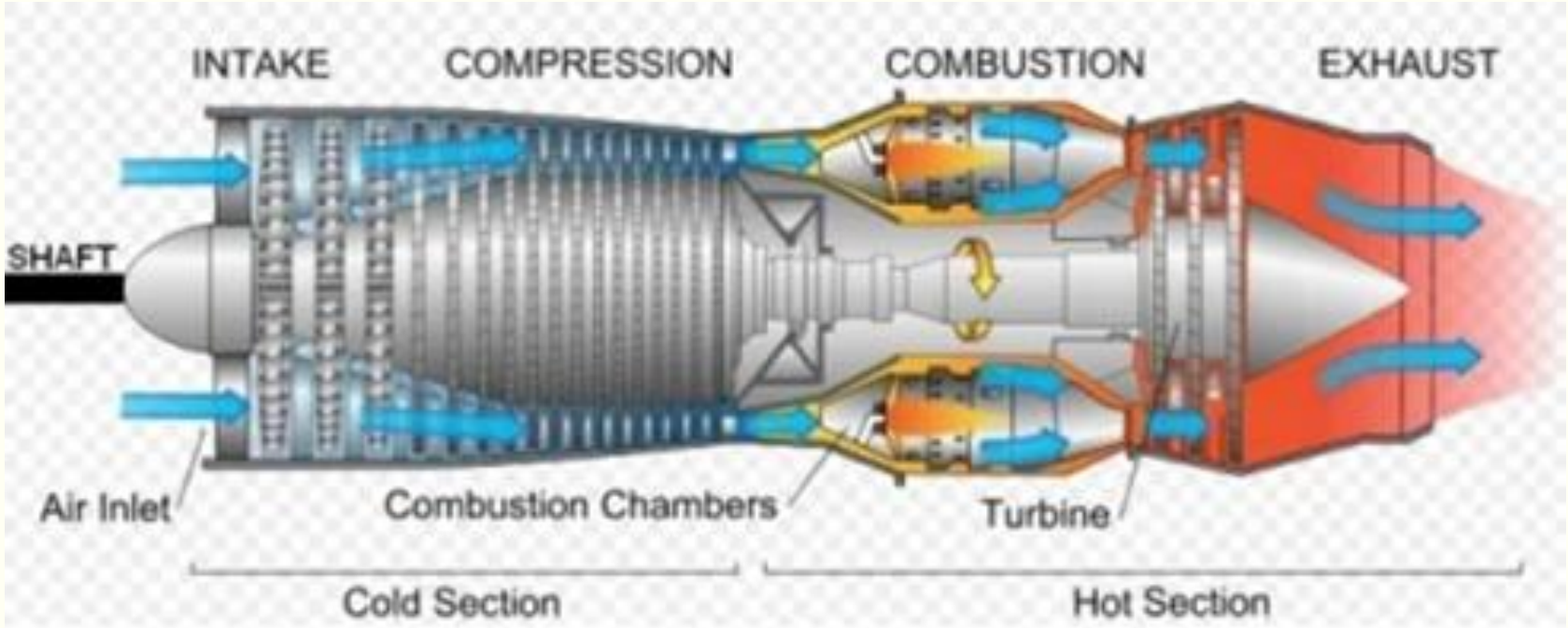




After flying for 16 years. Bizarre.

Normally less than 1% of USAF aircraft are grounded due to lack of an operating engine. For the F-35 this rate increased to near 10% by 2021.

What is causing the engine wear is dust melting in the F-35's combustors and sticking to the turbine blades. This produces a layer of material similar to house bricks.

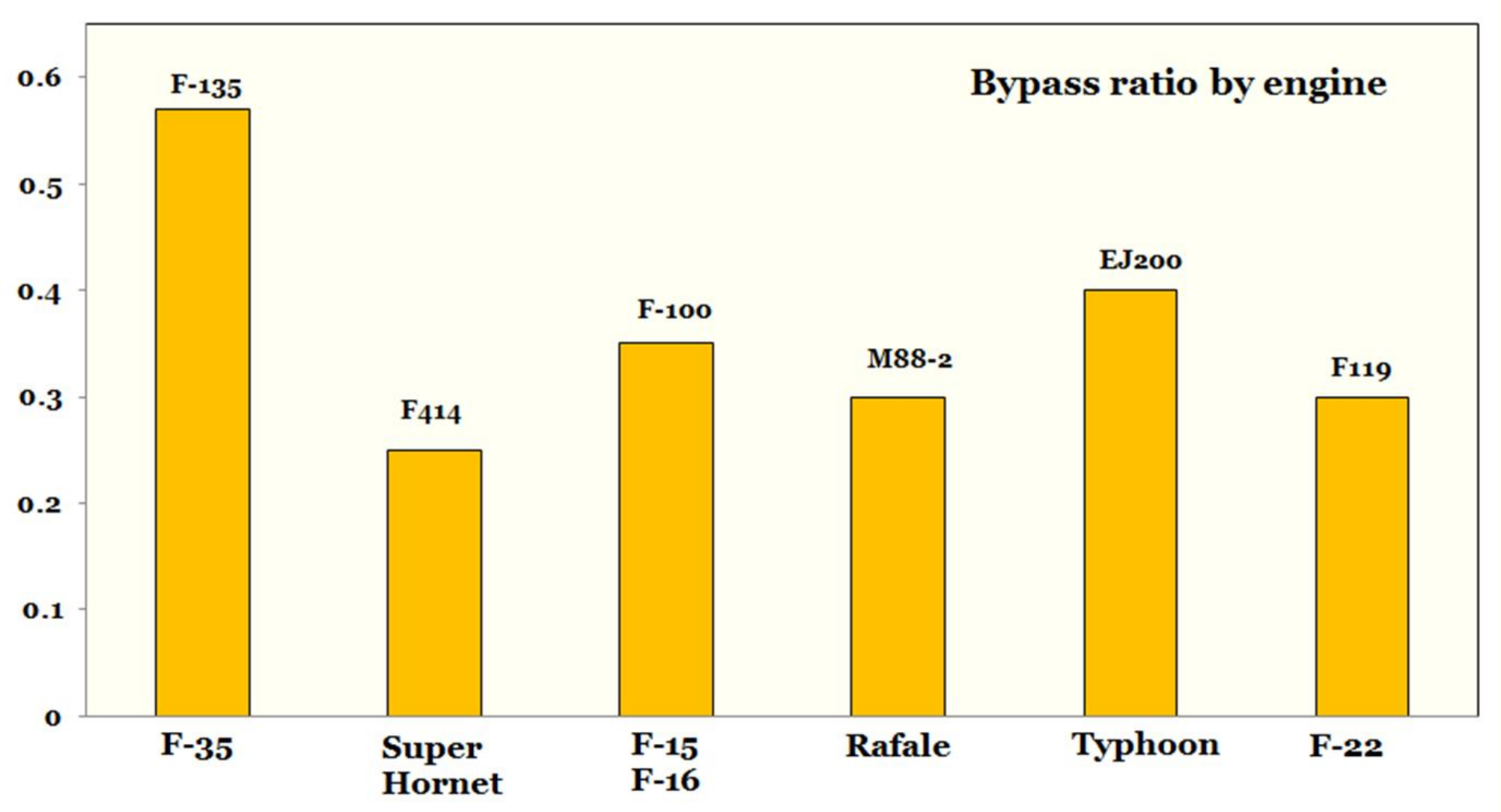


Normal jet engines don't suffer from this so much because they run much cooler.

This explains the sudden interest in an alternative engine from early 2021. Without a new engine the F-35 will be too expensive to maintain.

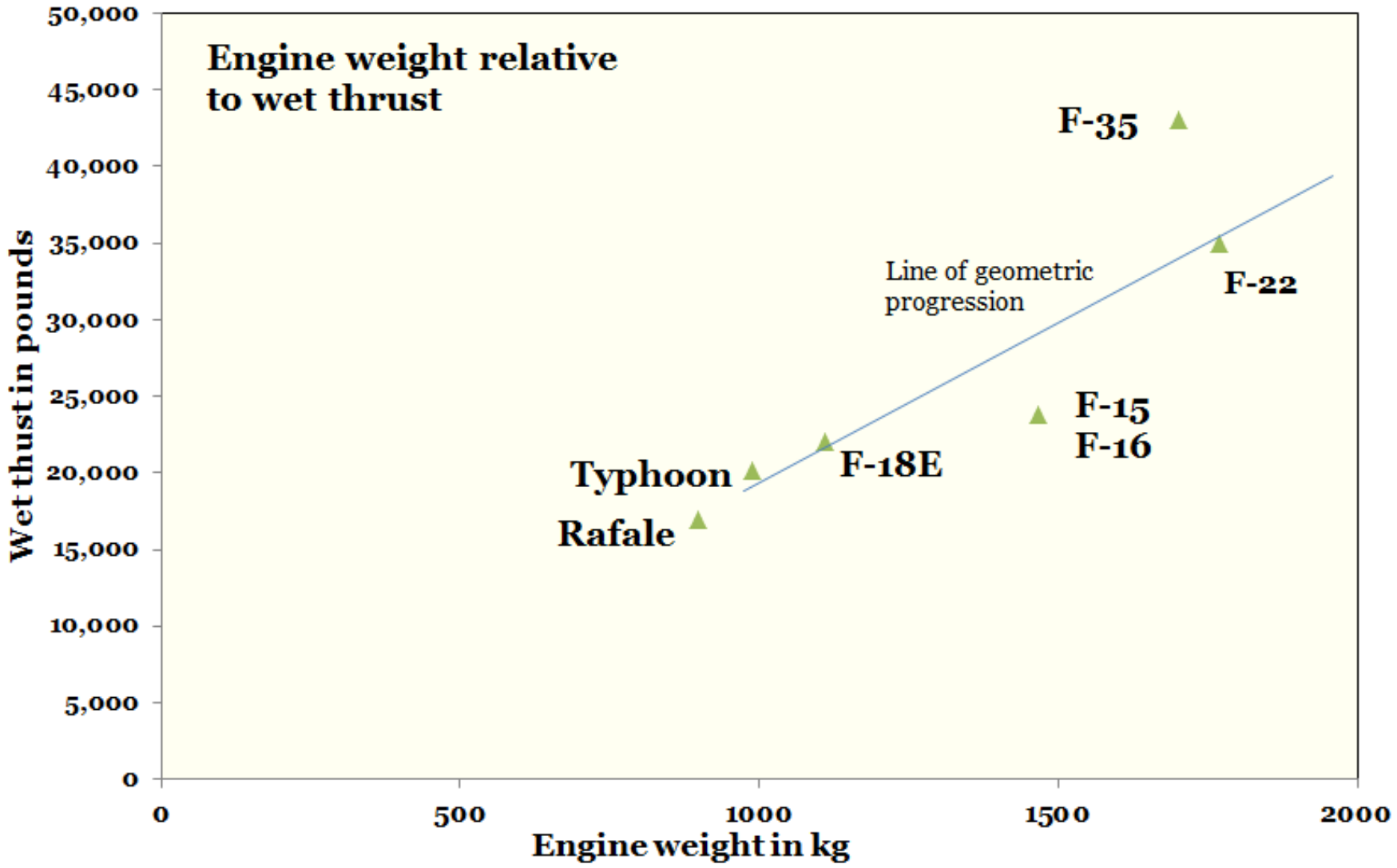
The engine is being re-engineered. And if you want to get the new engine, if and when it does come, that will be another US$20 million per aircraft.

We are buying dogs that will bleed us dry.



Another big difference from other fighter jet engines is that the F-135 of the F-35 hasa bypass ratio twice that of other fighter aircraft. Which has the effect of making it wide and draggy.

Which enables it to do this:



The doubled bypass ratio comes at the cost of a 23% increase in engine frontal area over the F119 of the F-22 and produces a 23% increase in wet thrust. For a few moments in the flight regime of the F-35B, the whole F-35 fleet is penalised in fuel consumption and drag.

Consequences

This article from March 2021 says that flying hours of the then 33 RAAF F-35s had been cut by 36% from 8,204 to 5,205 hours per year while operating costs remained at $258 million.

Which means that operating cost per hour of flight was then A$49,568.

Annual budget remains the same so the flying hours get reduced, in this case from 20 hours/month to 13 hours/month.

Pilots need 20 hours/month to maintain proficiency.

As shown by recent USAF results, when flying hours drop below 20/month the accident rate rises.

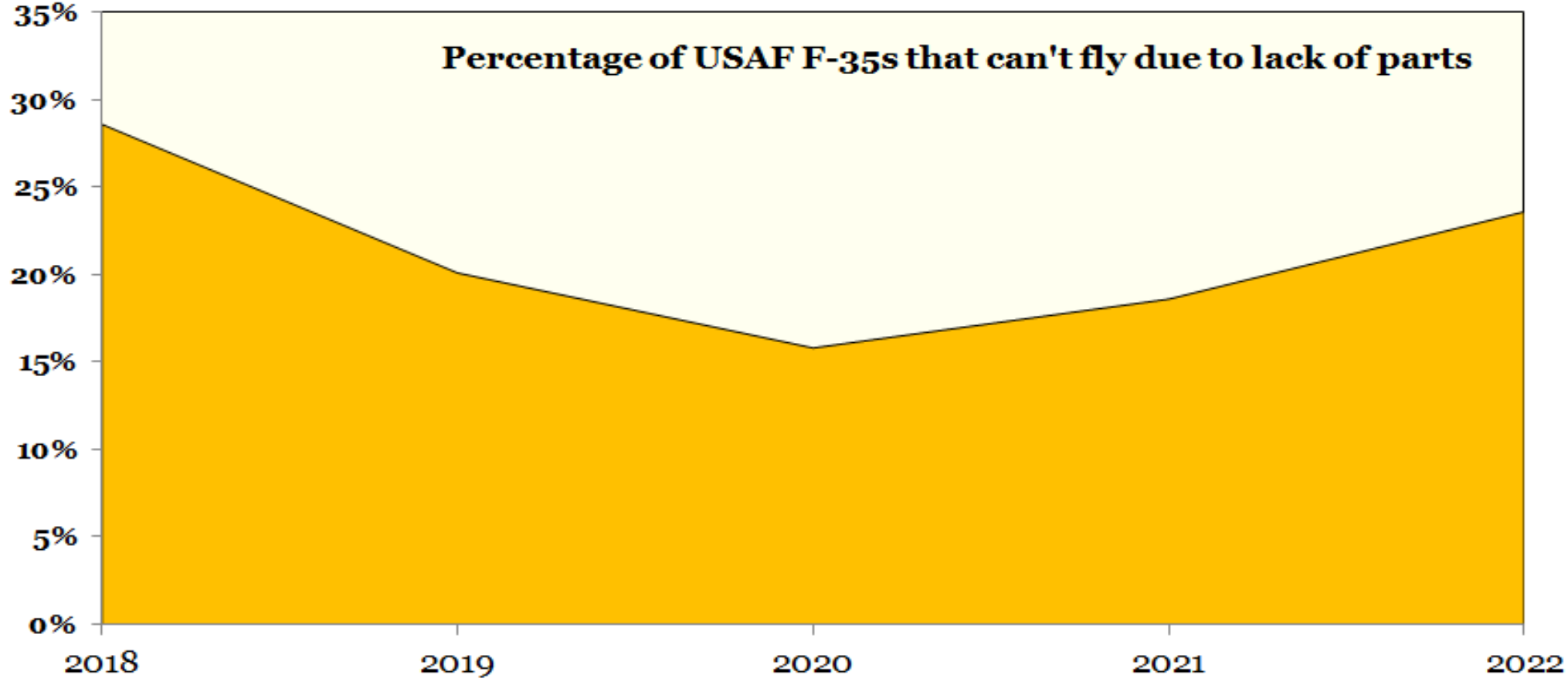
Our pilots will be flying an undefended light bomber into combat and not even be proficient in operating it.


THE AUSTRALIAN

Fighter flying hours cut amid engine worry

Defence has downgraded the availability of the nation's 33 Joint Strike Fighters after a warning from the US Air Force.

F-35 Fun Fact



A quarter of US Air Force F-35s are grounded due to Not Mission Capable for Supply.

"The F-35 Joint Program Office stated that the program plans to fund enough spare parts to achieve an approximately 15 percent rate of not mission capable due to supply. According to program officials, achieving a lower rate of not mission capable due to supply was not affordable."

GAO November 2022

How stealth is achieved if you have an unstealthy shape – spackle it up with paint containing a lot of tiny iron balls.

F-35Cs on the USS Carl Vinson have a rusty hue.

Iron has an SG of 7.8.

Vaccine injury took out an F-35C.

USAF QF-4 Phantom is shot at by an F-35 with two AIM-120s during last unmanned mission (and survives)

Be aware that missiles mostly miss.

So if you aren't carrying a lot of missiles in the first place, you have a problem.

PIK is 8% per radar missile.

Things that were never fighter aircraft.

The "F" designation of the F-35 allowed Lockheed Martin to sell a contraption of plastic, aluminium, titanium and copper for US$10,500/kg. Silver is US$772/kg.

Super Hornet
- four 2,000 lb bombs

F-117 – carries two 2,000 lb bombs

F-35 – designed to carry two 2,000 lb bombs internally.

F-111 – 14.3 tonnes of bombs

Indonesia's Fighter Aircraft

Indonesia has been far more intelligent about its aircraft purchases.

42 Rafale fighters from Dassault in France – with a loss/exchange rate of one Rafale per 3.8 F-35s, it would take only 19 Rafales to shoot down the 72 F-35s in the RAAF.

Indonesia is also getting 24 F-15EX which could also shoot down the entirety of the RAAF's aircraft fleet.

Indonesia also has 33 F-16s, five Su-27s and 11 Su-30s.

We now cannot achieve technical superiority over Indonesia in fighter aircraft.

We can only achieve dominance through buying a greater number of technically equivalent aircraft. And the only one available that is affordable is the Gripen-E.

Fortunately the Chinese stealth fighters, the J-20 and J-31, are both dogs.

Rafale fighter

- the production line is now booked out four years ahead.

Three countries set out to make stealth fighters - and all made copies of the F-22

South Korea

KAI KAF-21 Boramae

Japan

Mitsubishi X-2 Shinshin

Turkey

TF-X

They should have copied the YF-23 :

The Ghost Bat will not meet expectations.

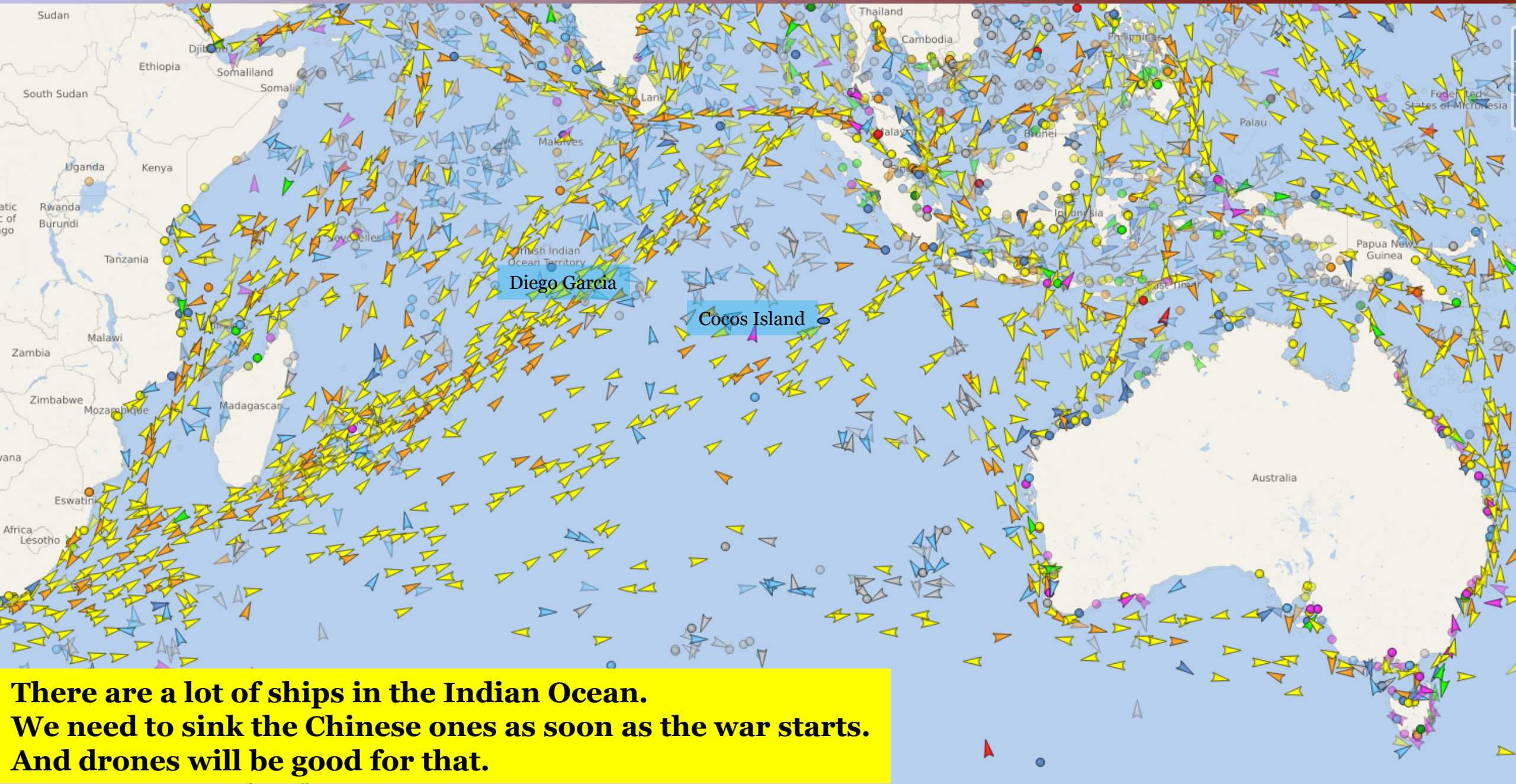
The wings and flaps are set up to have turning ability, as in a fighter, but the engine has only enough power for level flight. This is likely a cost-saving measure by the RAAF. At the same time the shape is not stealthy. The engine inlets are well forward and under the wings which increases the surface area of the aircraft and thus drag. Reportedly it only carries two air-to-air missiles as a supplement to the paltry four missile loadout of the F-35. The Ghost Bat is a wasted application of funds.

General Atomics XQ-67A

If you want a high lift to drag ratio, use long, narrow wings which will give you low fuel consumption and a long range. A low wing allows the landing gear to be pushed out and a wider weapons bay.

X-47B
The sort of shape necessary for survival against enemy radar systems

Building Australia's Defence



There are a lot of ships in the Indian Ocean.
We need to sink the Chinese ones as soon as the war starts.
And drones will be good for that.

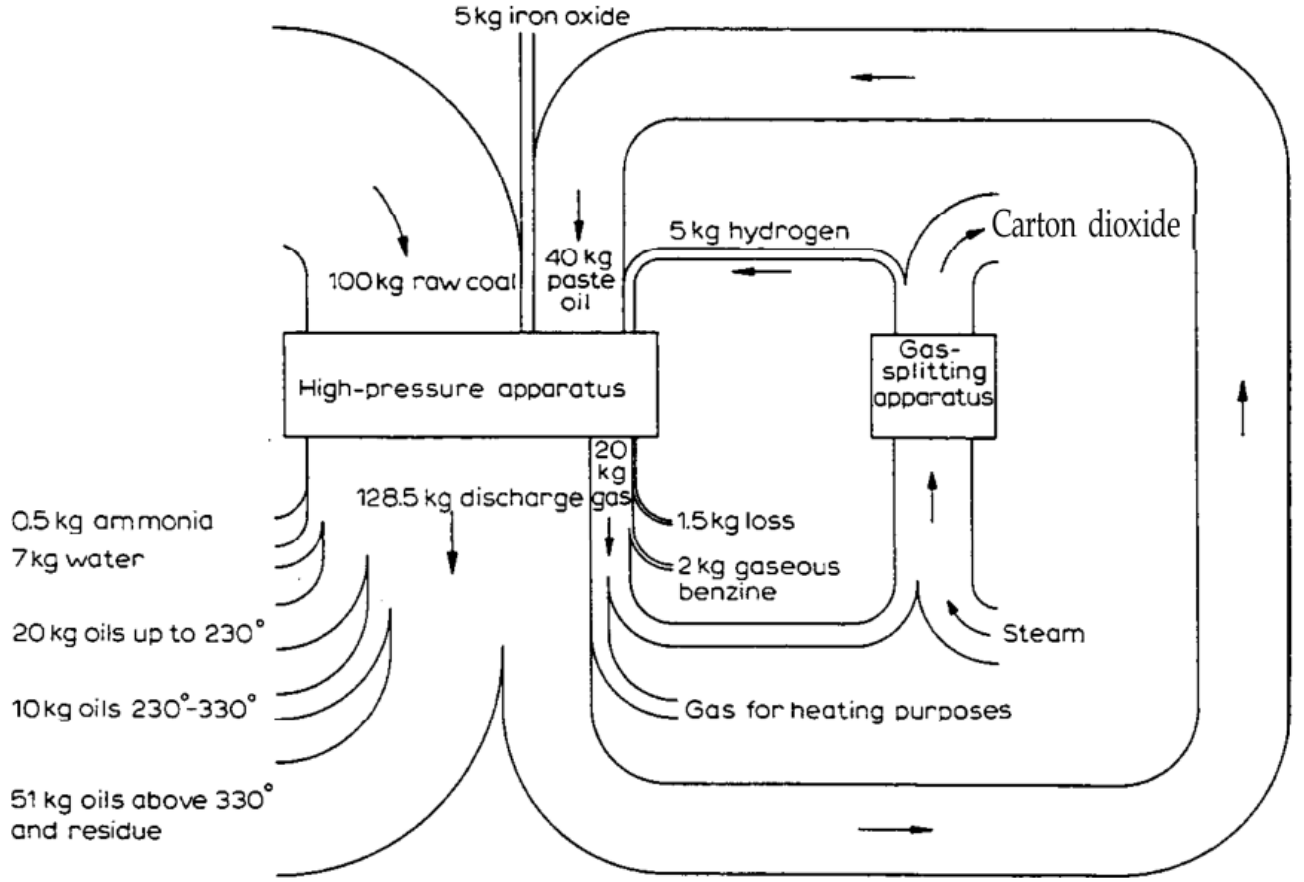
Fuel Supply

Australia uses one million barrels per day of liquid fuel but only produces 10% of that.

Australia used to have seven oil refineries but now there are only two left with a capacity of 235,000 barrels per day. Most of Australia's fuel is imported from refineries in Asia on a just-in-time basis.

Australia will shut down due to a lack of fuel. China has a strategic reserve of 1,200 million barrels. We have nothing. What is needed:

1. Stocks of one hundred million barrels of diesel and jet fuel.
2. Building Bergius plants to make liquid fuels from coal. Economic now if the $0.496 fuel levy is used to provide a backstop for commerciality.



Flow diagram of the Bergius process from Bergius' 1931 Nobel Prize acceptance speech.

Adding 5 kg of hydrogen per 100 kg of coal changes a low value solid into a precious liquid.

Industrial Base

In one of today's papers there was this line:

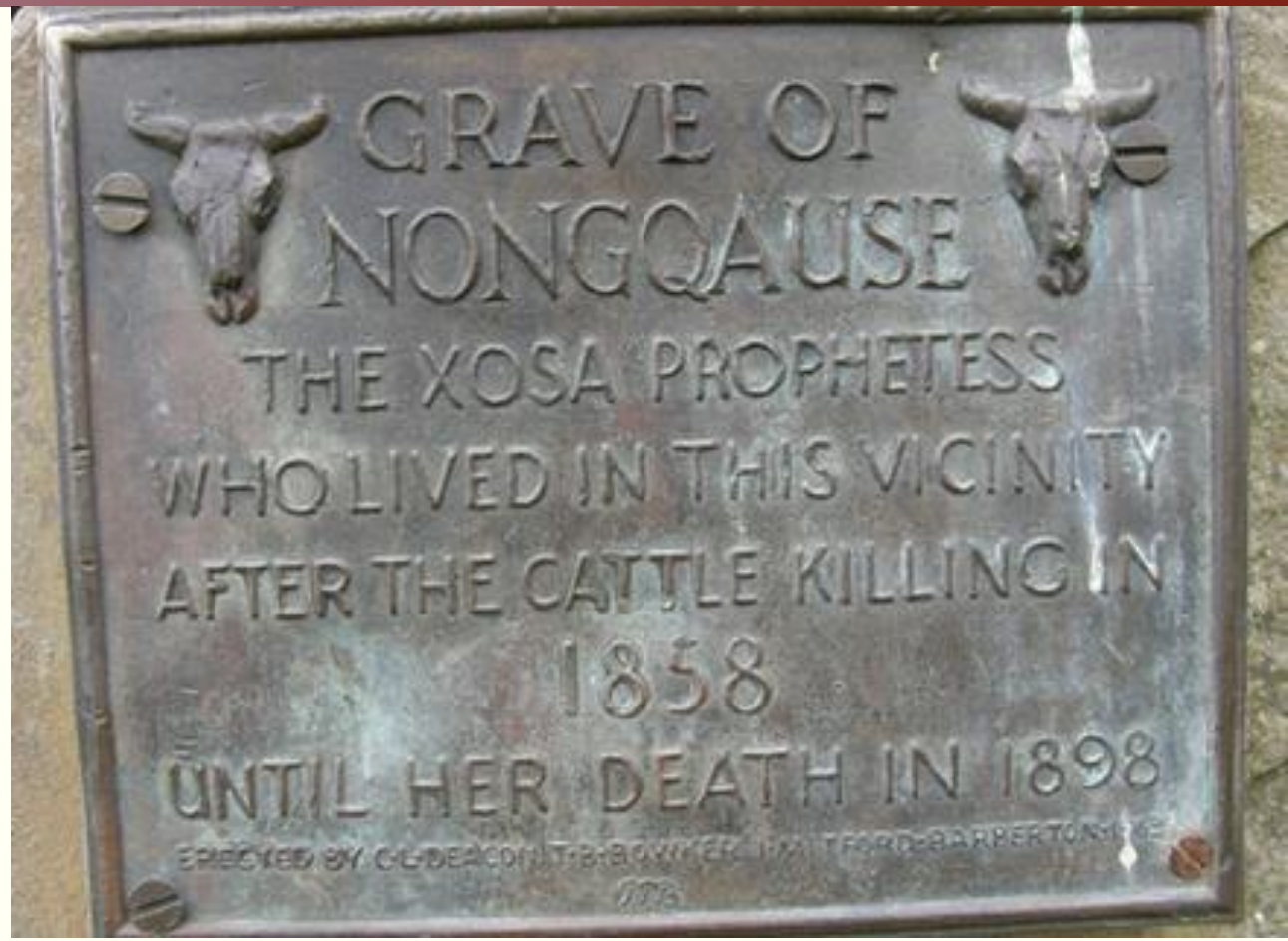
"Resilience in Australia's industrial base will need to be supercharged."

We are doing the opposite of that with Net Zero – we are stabbing ourselves in the back.

Net Zero is justified by global warming which does not have a basis in science.

The most apposite historic analogy of what Australia is doing to itself now is the 1856 cattle-killing frenzy of the Xhosa tribe in what is now South Africa.

In the resulting famine, the population of the province dropped from 105,000 to fewer than 27,000.



Nonguase's gravestone

Nongqause dreamed a dream and most of her tribe died.

The Existential Need to go Nuclear

Under the Nuclear Non-Proliferation Treaty of 1968, Australia qualifies to become a nuclear-armed power.
China has been threatening Australia with nuclear attack for decades.
China is also threatening nuclear attacks on Japan.
Russia has been threatening countries near and far with nuclear attack as a solution to their self-inflicted problems.
With the US destroying itself, that country's nuclear umbrella no long exists.
Australia needs to copy the French approach which is called the *Force de dissuasion*.

- the capacity to inflict so much damage on a potential (and more powerful) adversary's population that the potential adversary will be deterred from attacking, no matter how much destruction it can inflict.

In de Gaulle's words:

> *Within ten years, we shall have the means to kill 80 million Russians. I truly believe that one does not light-heartedly attack people who are able to kill 80 million Russians, even if one can kill 800 million French, that is if there were 800 million French.*

Those numbers are also our numbers. We need to have the means to kill 80 million Chinese. And that might stop them killing perhaps 12 million Australians, which China would do casually if there were no consequences for them.
Optimally, that would take eight missiles with 10 MIRVed warheads each of 300 kilotons.
Based on the cost of a MX/Peacekeeper missile in 1998, the whole exercise might cost $8 billion.
The only advanced economies we are aligned with at the moment are Japan and South Korea, both of which are considering the acquisition of nuclear weapons.

The worst countries in the world – Iran, Pakistan and North Korea – all have nuclear weapons.

The last North Korean test was 250 kilotons and was likely an Iranian device.

Both South Africa and Pakistan developed their nuclear weapons programs for US$250 million.

Recently water was found in the fuel tank of a Chinese ICBM.

Plus in at least one ICBM field the covers were installed such that the missiles couldn't launch.

This might give us another couple of years to get our act together.

Peacekeeper ICBM

Pakistan's Khushab nuclear complex
- four reactors for producing weapons -grade plutonium

Last four books