



# Emerging Risks Scenarios for Risk Management

Cambridge Centre for Risk Studies 20 March 2014

## Scenario 1 - Geopolitical Conflict 'China-Japan Conflict'

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**Risk Studies**



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# Subject Matter Editors

## Geopolitical Conflict



**Richard Hartley**  
**Co-Founder, Cytora**

Political scientist and historian, with expertise in conflict monitoring, analytics, and technology. Richard is in charge of product development at Cytora



**Josh Wallace**  
**Co-Founder, Cytora**

Political scientist and historian, with expertise in conflict monitoring, analytics, and technology. Josh is head of research at Cytora.



**Dr. Ivan Ureta**  
**Professor in International Relations, Geneva School of Diplomacy**

Political economist studying social change, unrest and conflict, global governance, and political communication. Particular expertise in civil disorder in Southern Europe and Middle East.





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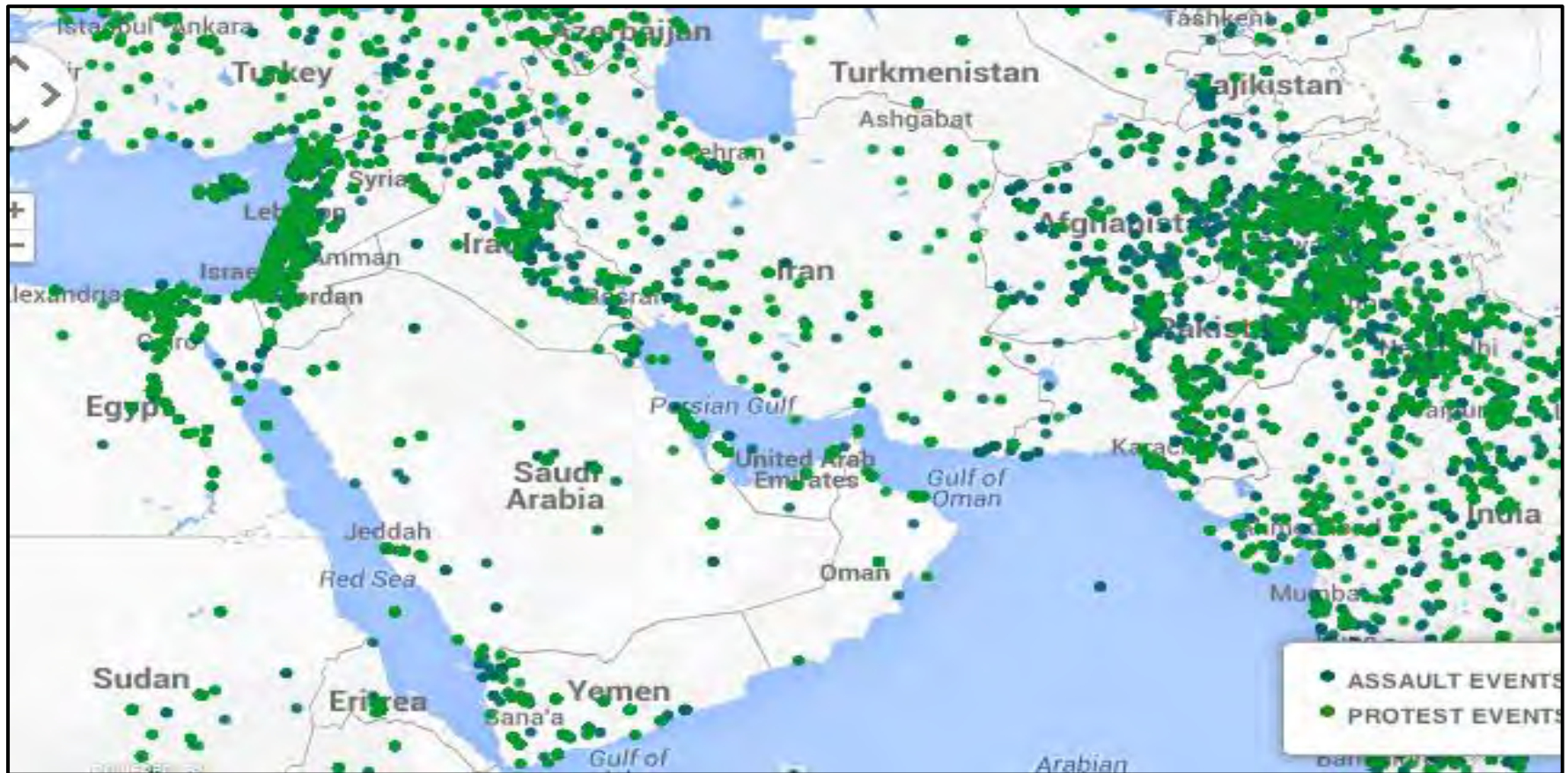
**Joshua Wallace**

Cytora



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# Real Time Political Risk Analysis using Big Data



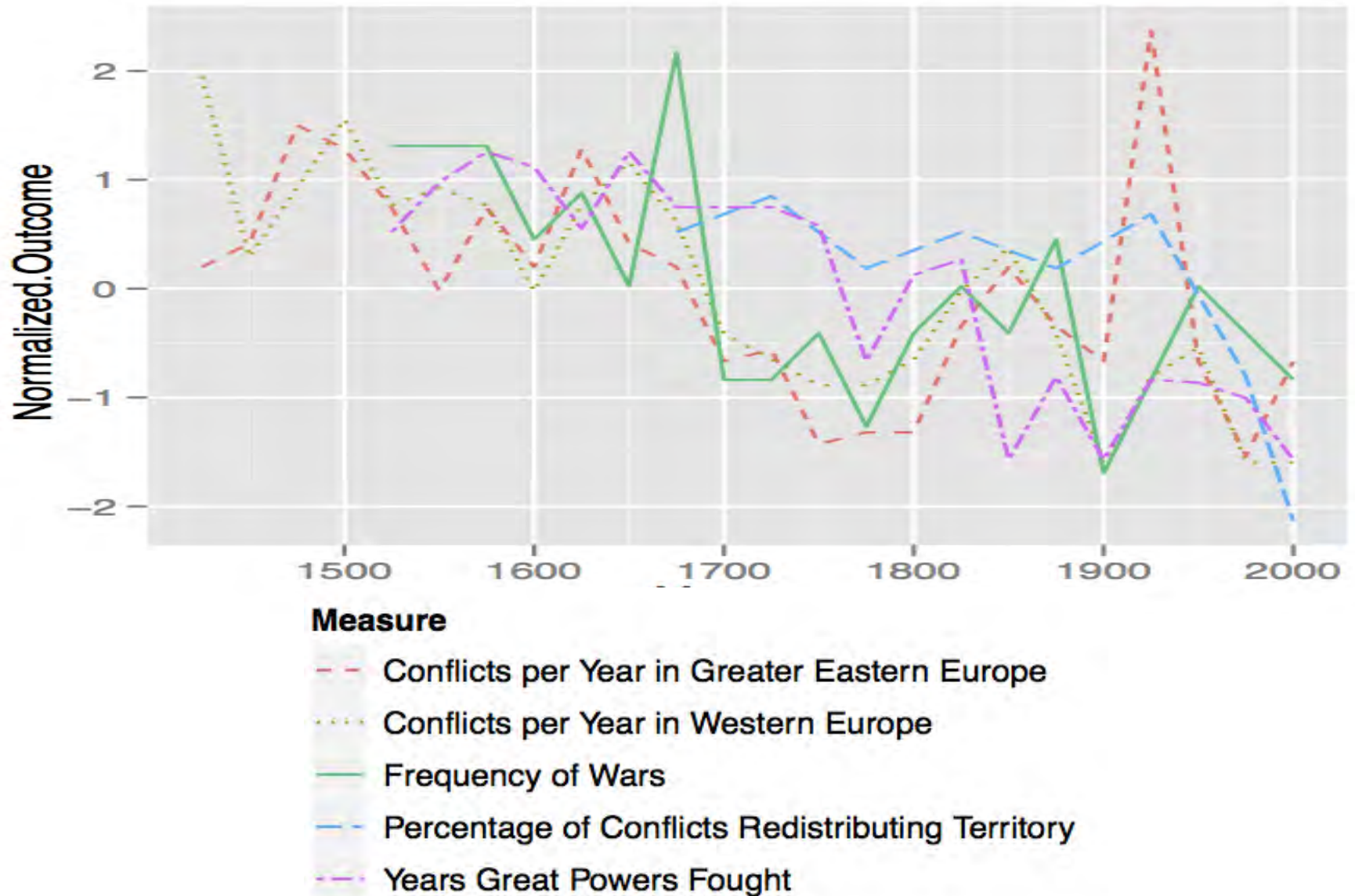


# Wars have constantly shaped human history



‘The most persistent sound which reverberates through history is the beating of war drums’. Arthur Koestler

# The Long Peace

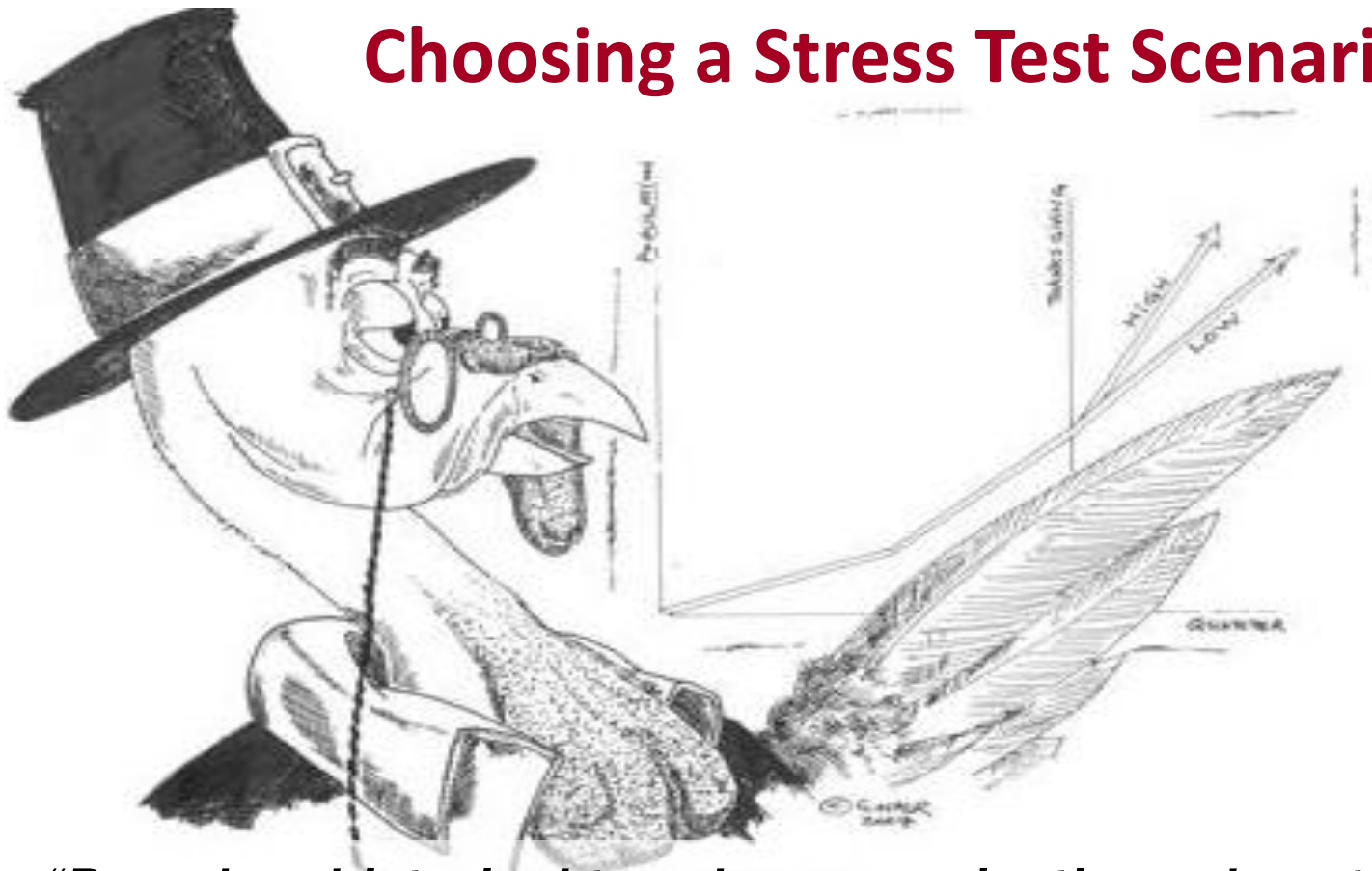


# The End of Pax Americana?

- The rise of China & other states
- Increasing Multipolarity
- America's role of 'World Policeman' being eroded



# Choosing a Stress Test Scenario



***“Based on historical trends, our projections show that population numbers should keep increasing: we look forward to the upcoming Thanksgiving season with confidence”***

- Probability of war throughout history has been miscalculated
- Current trends may just be a ‘statistical gap’



# Taxonomy of Conflict and Likelihood

	Level 1	Level 2	Level 3	Level 4
<b>Proponents</b>	Conflicts between minor powers – No superpower	One superpower against a minor power	One superpower against regional power/an ally or proxy of another superpower	More than two superpowers engage in direct conflict
<b>Polarity</b>	Any	Any	Shift to Multipolarity	Multipolar
<b>Power Asymmetry</b>	Balanced low level of power	Major asymmetry	Moderate asymmetry	Balanced
<b>Observed Frequency</b>	Several conflicts a decade, and always a minor war somewhere in the world	Expect one or two a decade, as US or allies exert increasing power as global policemen	In modern times, expect only one or two a century as superpowers avoid confronting each other	20 <sup>th</sup> century history does not apply – globalized economy deters world wars
<b>Current Likelihood</b>	Common (>50% a year)	Occasional (10% a year)	Unlikely (1% a year)	Extremely Unlikely (0.1% a year)
<b>Duration of conflict</b>	Long	Short	Short-Medium	Long
<b>Example</b>	Yugoslav wars Congo wars	‘Desert Storm’ Iraq; Afghanistan invasion;	US-Vietnam War	WWI WW2

Level Selected

# Future Hotspots?



# China-Japan Conflict Context

## A long historical context for national enmity:

### First Sino-Japanese War (1894-1895)

- Japanese imperialist & expansionary policy leads to invasion of China



### Second Sino-Japanese War (1937-1945)

- Human Cost: Estimated 15-20 million casualties
- Economic Cost: GDP \$20 (China) and \$8 (Japan) billion lower than pre-war levels
- Political Cost: Erosion of support for KMT regime facilitated the rise of Mao and the Communists





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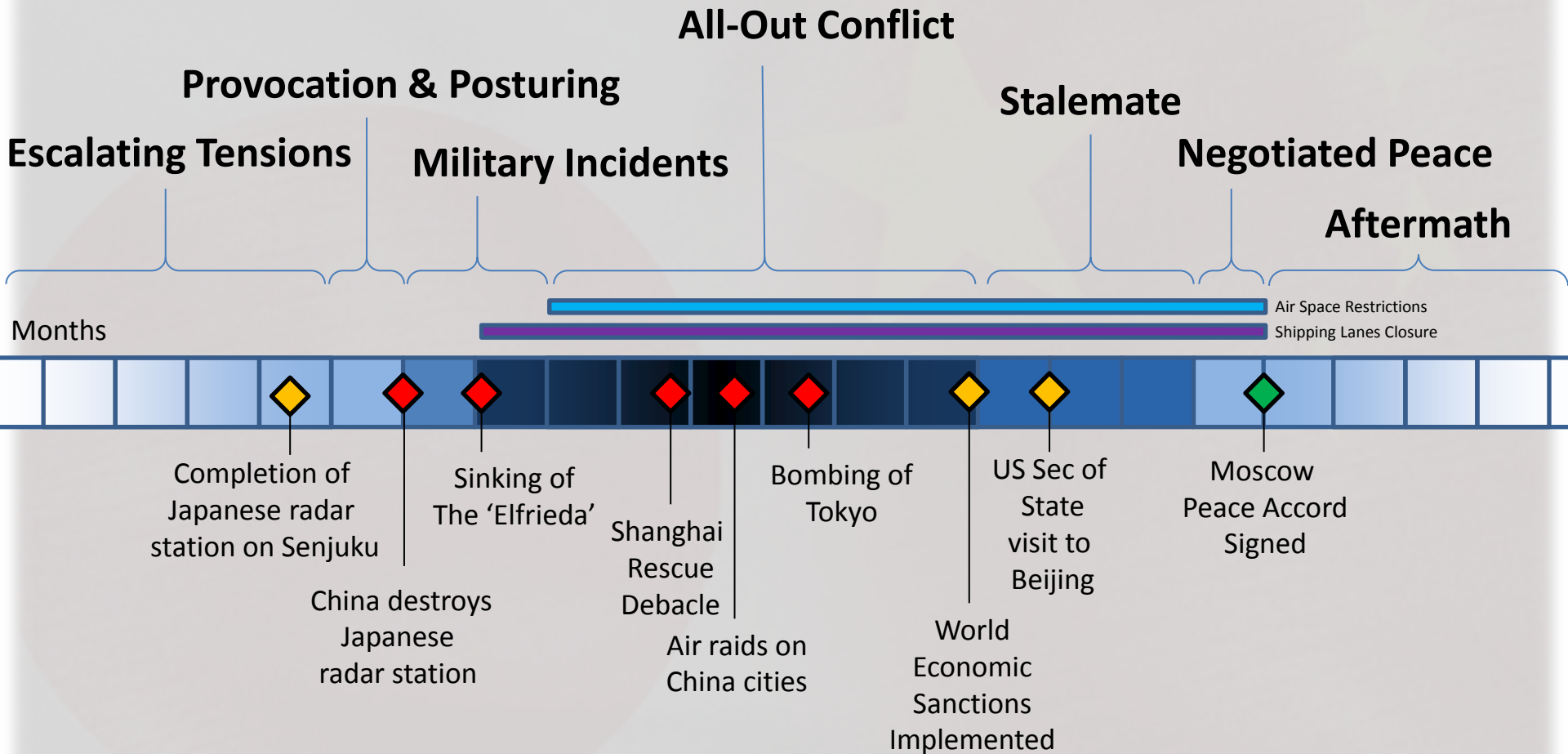
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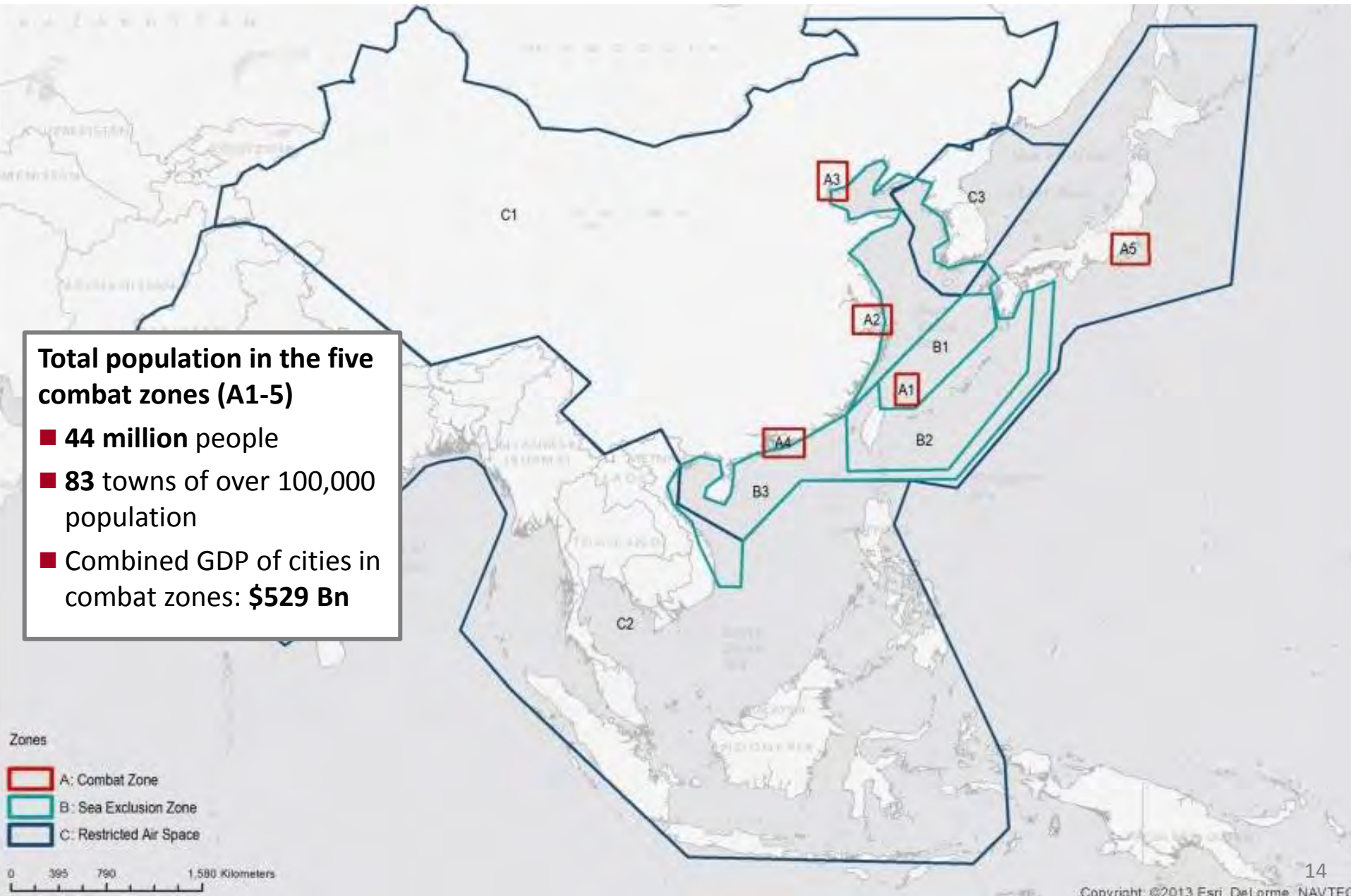
# China-Japan Conflict: Scenario Phases



# China-Japan Conflict Scenario Map

## Total population in the five combat zones (A1-5)

- 44 million people
- 83 towns of over 100,000 population
- Combined GDP of cities in combat zones: \$529 Bn



# Phase 1: Escalating Tensions

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## Tensions grow in East China Sea

Near miss near disputed islands prompts another diplomatic row

Wednesday, January 8

Tokyo, Japan (2103 GMT – 0503 JST) - Tensions between China and Japan grew yesterday following a skirmish at sea between Japanese fisherman and China's People's Liberation Army Navy.



Set against a backdrop of military modernisation, increased Chinese nationalism, the legacy of the second Sino-Japanese war, and an endemic thirst for natural resources, China and Japan have continued to clash over the islands.

Naval manoeuvres, large-scale war-games, and diplomatic posturing have defined recent tensions. The most

**Japanese and Chinese coast guards were quickly on the scene but did not engage one another**

recent clash saw Japanese fishermen stray into Chinese waters when fishing near the disputed Senkaku/Diaoyu Islands. China's Navy fired on the boat, although no injuries were reported from either side.



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## Crisis Point in East China Sea

China blames Japan for 'deliberately provocative action'

Thursday, February 13

Beijing, China (1129 GMT – 1829 CST) - Chinese politicians launched a stinging attack on Japan's 'deliberately provocative actions', following news of Japan's installation of radar equipment in the disputed Senkaku/Diaoyu Islands in the East China Sea.



The disputed islands play a significant role in determining each country's Exclusive Economic Zone (EEZ).

Japan maintain the radar unit will improve safety in the area for all vessels following a number of close calls with China's military. Chinese officials have dismissed their rational, arguing that it is 'an egregious, unlawful and dangerous claim for sovereignty.

The international community has pleaded for calm, with US officials reluctant to state whether it was prepared to support Japan militarily if the crisis escalated.



# Phase 2: Provocation & Posturing



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## Markets panic as China offers ultimatum

**FTSE (-3.2%) and Dow (-3.7%) plummet amidst fears of war**

Friday, February 21

New York, NY (2251 GMT – 1751 EST) - Financial markets tumbled around the globe as fears grew of armed conflict between China and Japan. China's ultimatum requires Japan to remove all equipment and personnel within seventy-two hours. Failure to do so, Chinese officials state, "will result in swift and appropriate military action".

It is understood that China are not pursuing diplomatic solutions following removal of all non-essential personnel from their embassies in Japan. Compounding fears of war and triggering large drops on markets worldwide, China suspended all trade agreements with Tokyo.



**Traders suffered heavy losses following announcement of China's ultimatum and suspension of trade.**

Anti-Japanese protests have been on-going in all of China's major cities. Western countries have urged citizens to avoid the region completely



# Phase 3: Military Incidents

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**BREAKING NEWS**

## War in the East China Sea

China and Japan exchange fire over disputed islands.

Monday, March 3

Beijing, China (0246 GMT – 0946 CST) - **Seventy-two hours after the ultimatum was given, a Chinese People's Liberation Army Navy (PLAN) Lanzhou-class destroyer launched a C-602 cruise missile against the radar installation on the disputed islands.**



The missile destroyed the radar along with a naval transportation unit, killing 18 members of Japan's Maritime Self-Defense Force (JMSDF). The West condemned the missile attack with the US, UK and France calling an urgent meeting of the UN Security Council.

The following evening two Mitsubishi F-2 fighter planes took off from Tsuiki Air Base in Fukuoka, armed with

**China's PLAN create a blockade to the west of the disputed islands following the exchange of fire.**

ASM-2 anti-ship missiles. They targeted the destroyer responsible for the attack on Senkaku, penetrating its hull and disabling it in open water. China said that 37 sailors were killed in the attack, with the destroyer damaged beyond repair.



# Phase 3: Military Incidents (Continued)



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## Japan denies shooting down Flight 583

### Beijing to Sydney passenger plane crashes near Japan; 403 dead

Tuesday, March 25

Sydney (2308 GMT – 0808 Aus EST) - **A full military air and sea blockade is in force after a Beijing Air 747-400 disappeared from radar shortly after entering Japanese airspace.**

Wreckage of the plane, which was travelling from Beijing to Sydney, was found near the Japanese coast line. All 403 passengers and crew are presumed dead. Japanese officials have denied responsibility following China's accusations that a surface-to-air missile brought down the airliner.

The disaster comes only days after an 'Ultra Large Container Vessel' travelling from Singapore to Busan (South Korea) sank outside the restricted zone. Japan accused China of targeting the vessel, which the Chinese denied vehemently.



#### Anti-Japanese protests have escalated following the crash

Recent speculation suggest that a Chinese mine, broke its mooring and drifted into open sea.

The downing of the Flight 538 has led to widespread protests against Japanese people and businesses in China. Several people have been killed in intense anti-Japanese and anti-Western rioting in Shanghai and Beijing.



# Phase 4: All-Out Conflict

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## Tokyo loses power in huge cyber attack

### Retaliation for Japanese 'invasion'; Washington also loses power?

Tuesday, April 29

Tokyo (1027 GMT – 1827 JST) - The Futtsu power station, which is the major energy provider to the Keihin and Keiyo industrial zones, shut down yesterday following an "unprecedented cyber attack".

Although yet to be confirmed, Chinese military hackers are thought to be responsible in an attack, which is similar to the Stuxnet virus used to disable Iran's nuclear programme. Damage estimates are yet unknown but government sources suggest it could be weeks before the power station is back online.

The attack is believed to be a direct retaliation for the incursion of Japanese soldiers into China.



**The Futtsu power station, the second largest of its type in the world.**

Trading has been suspended on all major stock markets following the attack as the world prepares for war.

A massive effort to evacuate westerners, mostly to India and Australia has been hampered by poor weather. It is understood that a full US-led diplomatic effort is underway.



**BREAKING  
NEWS****WAR: Japan bombs China****Japan strikes military and industrial centres in Beijing & Shanghai**

Monday, May 12

Beijing (0058 GMT – 0758 CST) - **Japanese air and naval forces launched a massive strike against Chinese military targets and key industrial centres in the early hours of Monday morning.**

Details are still emerging but it is thought that Beijing and Shanghai were both targeted following the crippling Cyber attack against Tokyo on April 29.

The first wave of attacks, beginning around 1am CST, targeted military installations near Beijing and Shanghai. Local witnesses say the second wave of attacks began around 3am, which targeted some of China's most prolific industrial centres. There are early reports of devastating losses to massive



**Cruise missiles bombarded multiple targets across China in the early hours of Monday morning.**

manufacturing cities like Songjiang.

Chinese government officials condemned the attack and have promised "a swift response to Japan's barbarism". Western governments have joined the condemnation but have urged for calm and diplomacy as the world stands on the brink of all out war.



# Phase 5: Stalemate



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## US-China standoff continues

The US Pacific fleet continues war drills in support of Japan

Thursday, July 24

Singapore (1216 GMT – 1916 SGT) -  
**The Stalemate between US and Chinese forces in the East China Sea continues as both governments claim negotiations are on-going.**

Sources inside the US government are adamant that the US is maintaining a peaceful presence to encourage both sides to refrain from further attacks, which have already caused widespread loss and crippled the global economy.

Despite early condemnation, Russia's foreign minister said yesterday, "we support any peace-making efforts, and urge all sides to respect the international boundaries and work together for a swift, peaceful resolution".

Speculation is growing over how long



**US Carrier Group Abraham Lincoln steaming south of Japan**

the US are willing to stay engaged in the region. The scale of the intervention and the unprecedented rise in energy prices is costing billions of dollars every week. The presidential press secretary, however, was adamant that this was a human problem and not an economic one. The irony, of course, is that the solution may prove to be economic rather than human.

# Phase 6: Negotiated Peace

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## US & Russia press for peace

Retaliation for Japanese 'invasion'

Tuesday, September 16

Singapore (0343 GMT – 1143 SGT) -  
**Air force One touched down in Singapore this morning in a last ditch attempt to negotiate a peaceful resolution between China and Japan.**



**Air Force One taxiing in Singapore where President Obama urges peace**

President Obama urged both sides to refrain from inflammatory action, but reiterated that Japan would be defended at all costs, as per the joint resolution passed in congress. The US, with the support of Australia and India, and the UK, France and Germany, still have its Pacific fleet in position.

Most significantly, Russia, a historical ally of China, announced that they would not intervene and would assist the United States and the UN in their

efforts. It is thought that fears of internal economic collapse has left China looking for a peaceful end to hostilities and the return of normal economic activity.

Japan too are thought to be seeking peace as their war efforts and economic capacity have been severely hampered by the attack on Futtsu Power Station.





# Phase 7: Aftermath



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## Peace talks at 'advanced stage'

### Negotiations focus on re-establishing and securing global trade

Friday, November 21

Singapore (1105 GMT – 1805 SGT) - **Peace talks between Japan and China continue as both sides seek to rebuild trade relations and re-open shipping and air routes that are vital to their respective economies.**

It is understood that the China have stated that any attack by Japan would immediately void all agreements permanently. Russia and the United States have set similar demands, with Japan reluctant given the attack on Tokyo and implication that the conflict was a political, military and economic victory for China.

Despite initial reluctance from China, the United States has deployed a large naval presence to the region to assist in



**Japan-China peace talks continue in Singapore, with diplomatic support from the United States and Russia**

re-establishing the free flow of shipping routes into and out of the South and East China Sea.

Markets have responded positively to the talks, with the Dow Jones up 2.1% for the week and the FTSE 100 up slightly less. Commodity prices dropped too, as fears of all out war subsided.

# Scenario Variants: S2 & X1

## S2 Scenario

- 2-year duration
- 5-years of trade disruption
- Prolonged conflict and stalemate phase
- 70% trade disruption
- 250,000 dead

## X1 Scenario

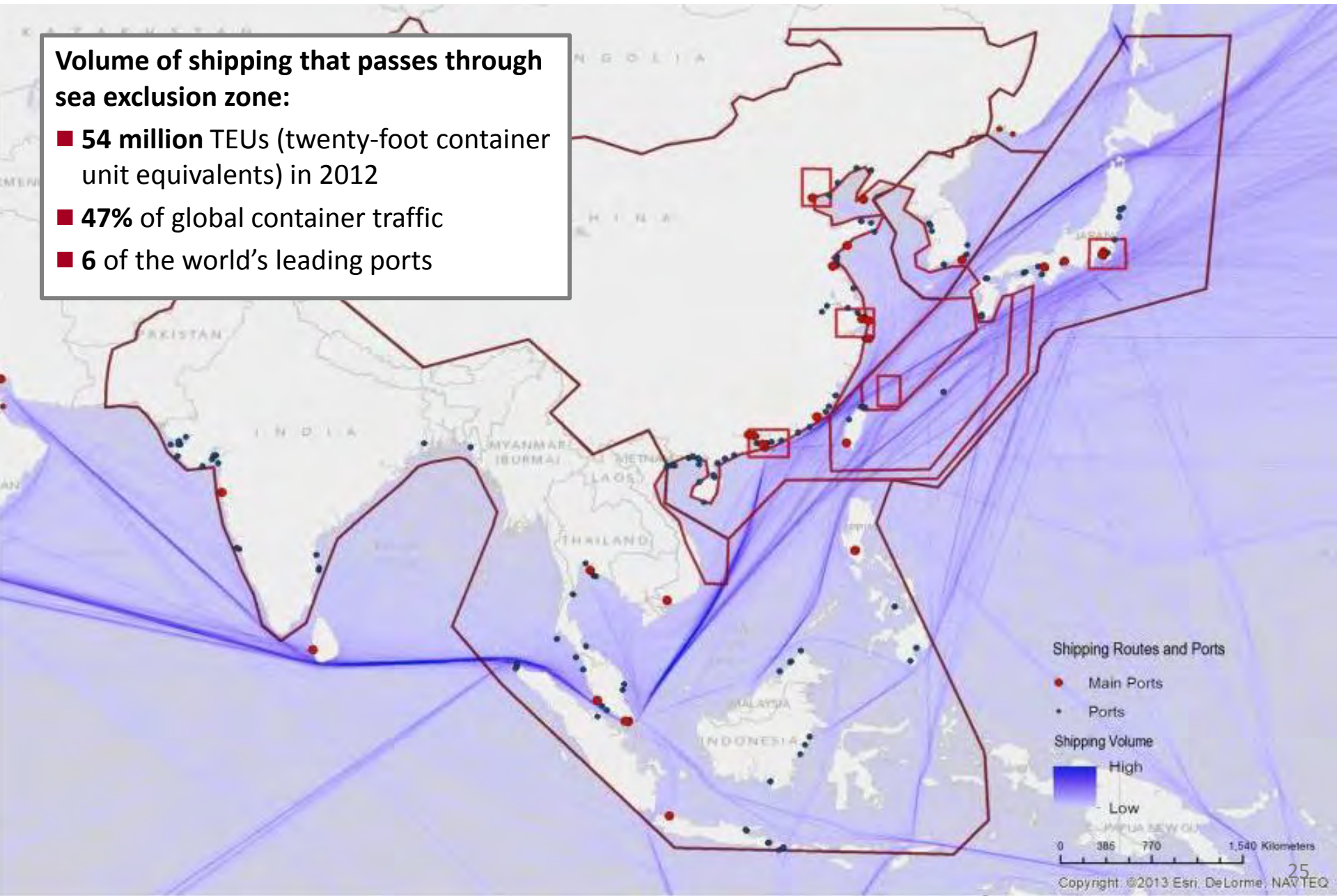
- 5-year duration
- 5-years of trade disruption
- Prolonged conflict phase
- 90% trade disruption
- 500,000 dead



# Shipping Lanes Affected by Sea Exclusion Zones

Volume of shipping that passes through sea exclusion zone:

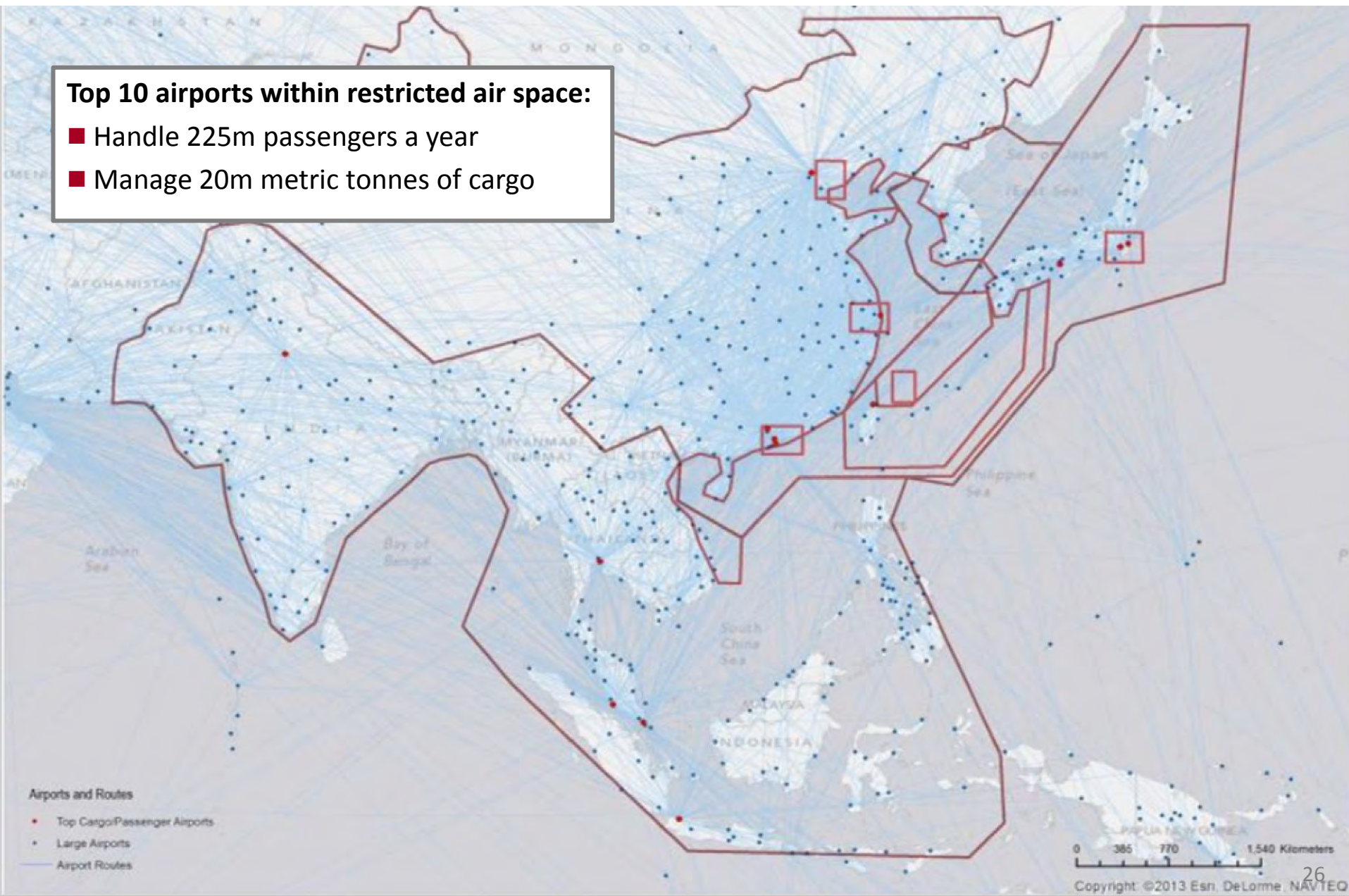
- **54 million** TEUs (twenty-foot container unit equivalents) in 2012
- **47%** of global container traffic
- **6** of the world's leading ports



# Commercial Flight Routes Affected by Restricted Air Space

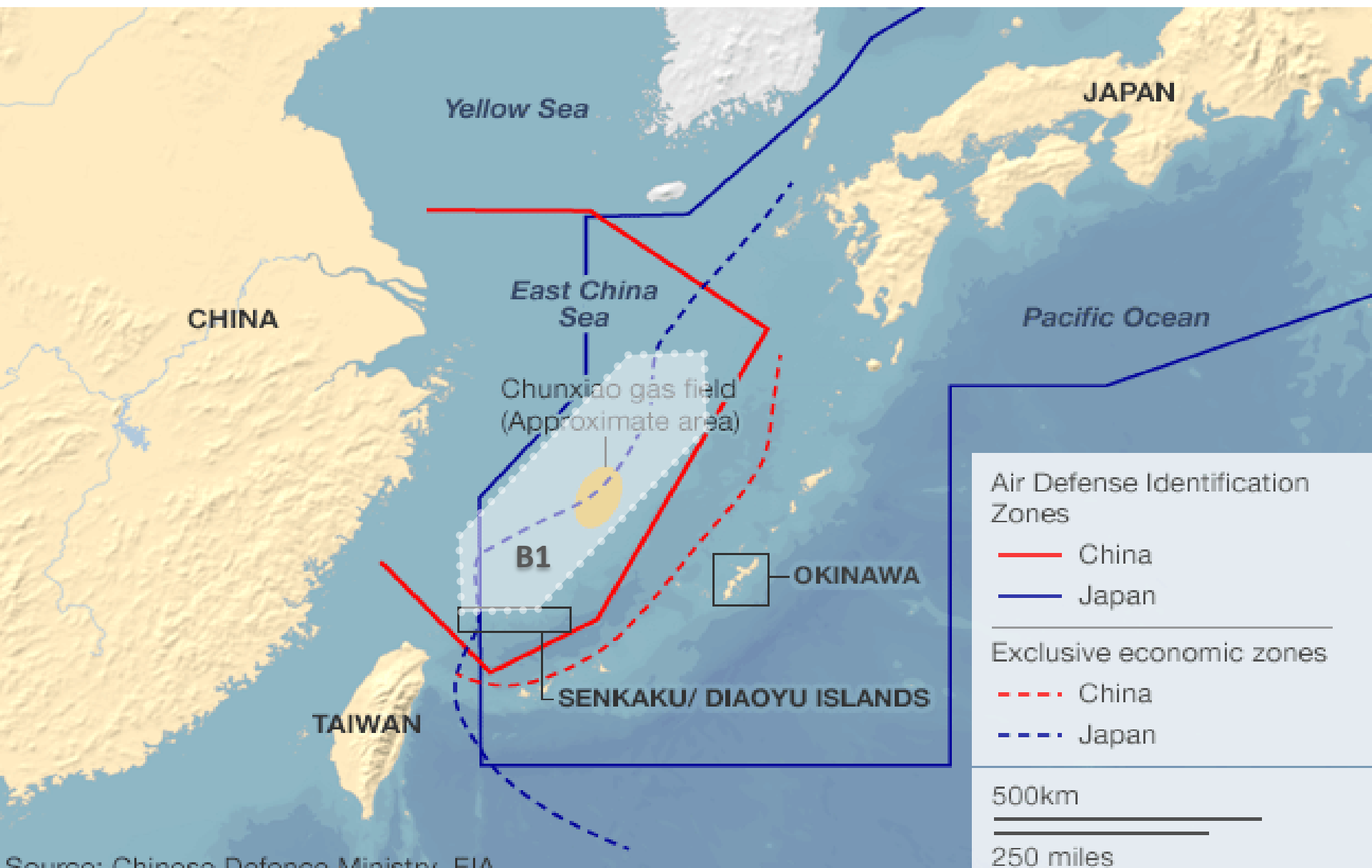
## Top 10 airports within restricted air space:

- Handle 225m passengers a year
- Manage 20m metric tonnes of cargo

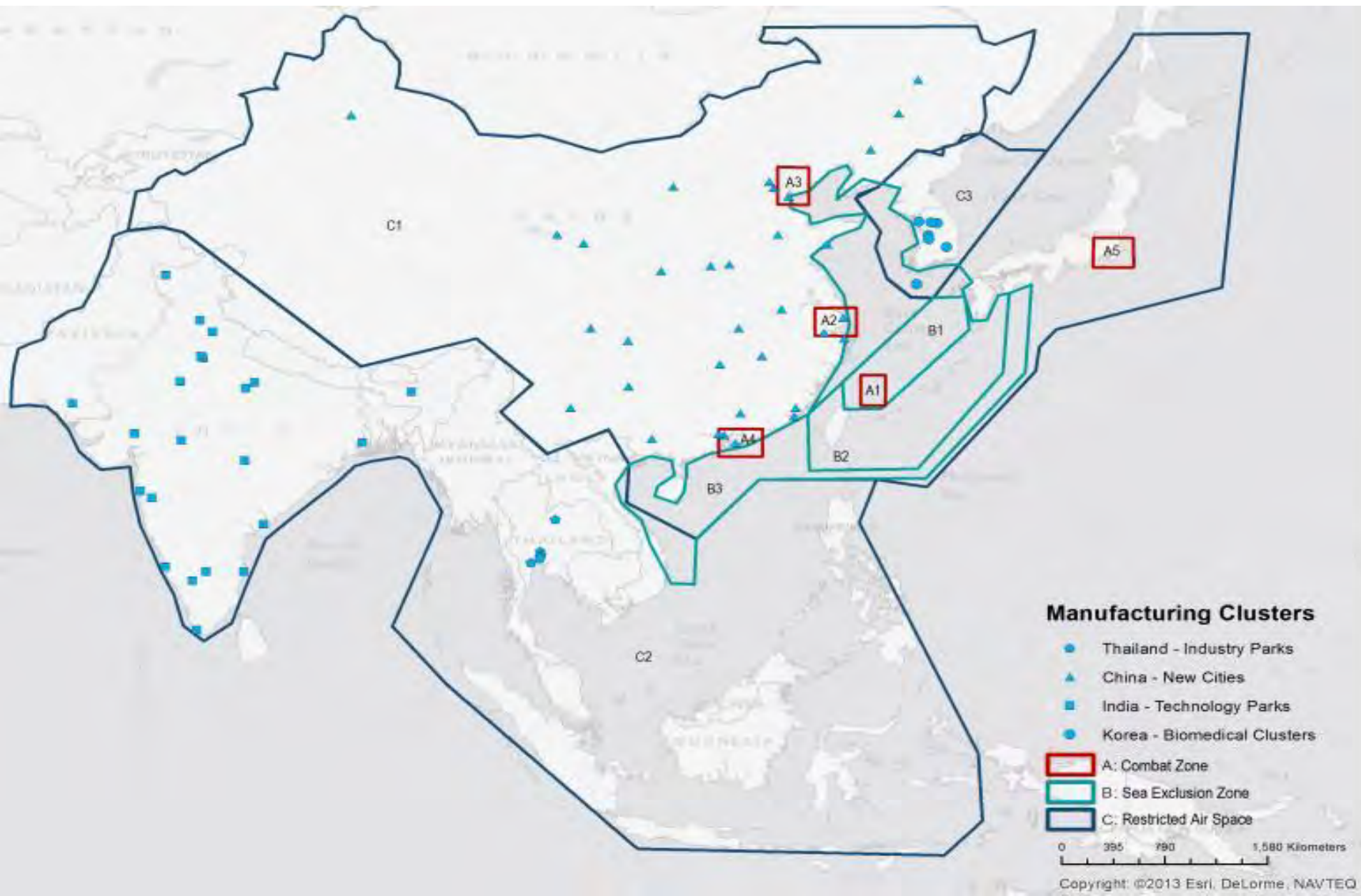




# Official ADIZ vs China-Japan 'B1' Zone



# Hi-Tec Manufacturing in the War Zone







# Pomegranate

## Our Fictional Example Company

- Fictional U.S. consumer electronics company
- 9<sup>th</sup> largest international player in computer hardware
- Sells its products in 75 countries worldwide
- Produces over 10 million laptops & tablet units a year
- **Pomegranate *Persephone*** 4G tablet is the new flagship product range



# Impact of Military Strike on Shanghai





# Impact on Pomegranate Inc.



*Pomegranate*



- Bombing of Quanta on May 11 means that Pomegranate loses ability to supply markets for 6 months, losing market share to competitors
- Pomegranate sees 40% stock price fall
  - Analysts blame over-concentration of supply chain in one manufacturing hub
- Stockholders launch record litigation in US against Directors and Officers of Pomegranate
- Corporate bonds of Pomegranate are downgraded from AA+ to BBB and put on default watch
- Some insurers discover they are insuring Pomegranate as well as investing in their corporate bonds, suffering a double whammy



# Direct Losses



## Property losses:

- 450,000 properties damaged during military action
- Corporations suffer heavy losses
- Business interruption from power and utility outages
- Evacuation of personnel
- IT infrastructure damaged in cyber attacks



## Life, Health & WC losses:

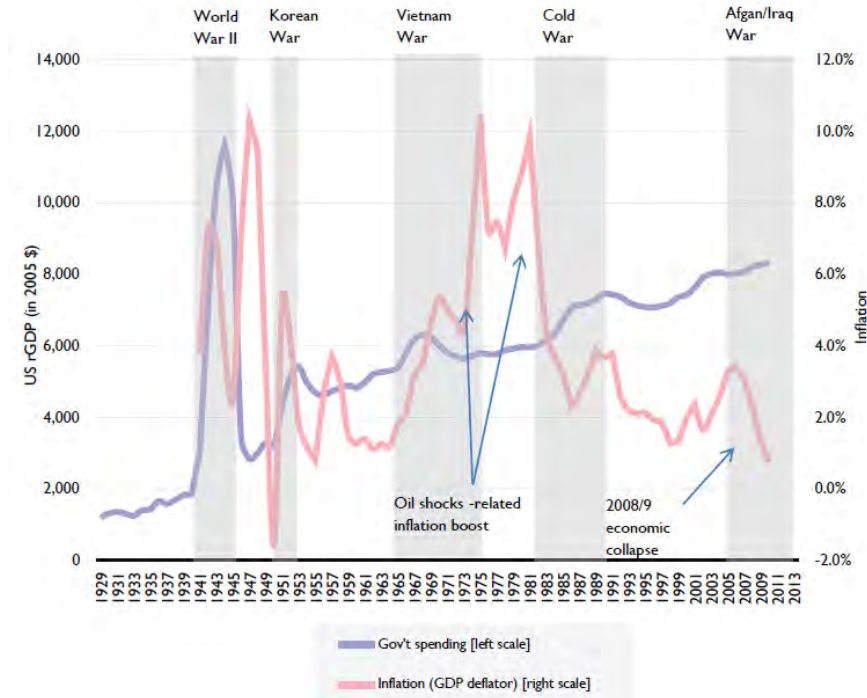
- Factories and office buildings targeted in military action
- c.100,000 people killed
- c.750,000 people injured (75% in China, 25% in Japan)
- Exodus of Western business people

# Direct Damage Costs (\$1)

- Direct replacement cost of built environment damaged in China-Japan conflict **\$120 Bn**
- P&C Insurance loss in China & Japan **<\$20 Bn**
- Insurance losses in US & Europe **\$8 Bn**
- Healthcare costs & compensations for injury **\$2 Bn**
- Life & Health insurance claims **\$2 Bn**
- **Total Insurance Industry Loss: \$30-40 Bn**

# Macroeconomics of War

- Govt. expenditure increases
- Public debt & taxation increase
- Inward FDI diverted
- Currency devaluation
- Inflation increase
- Energy price increase / volatility



## *China-Japan Conflict Scenario:*

- Exports are blocked
- Imports are blocked
- Destruction of capital assets depress industrial production



# China Exports



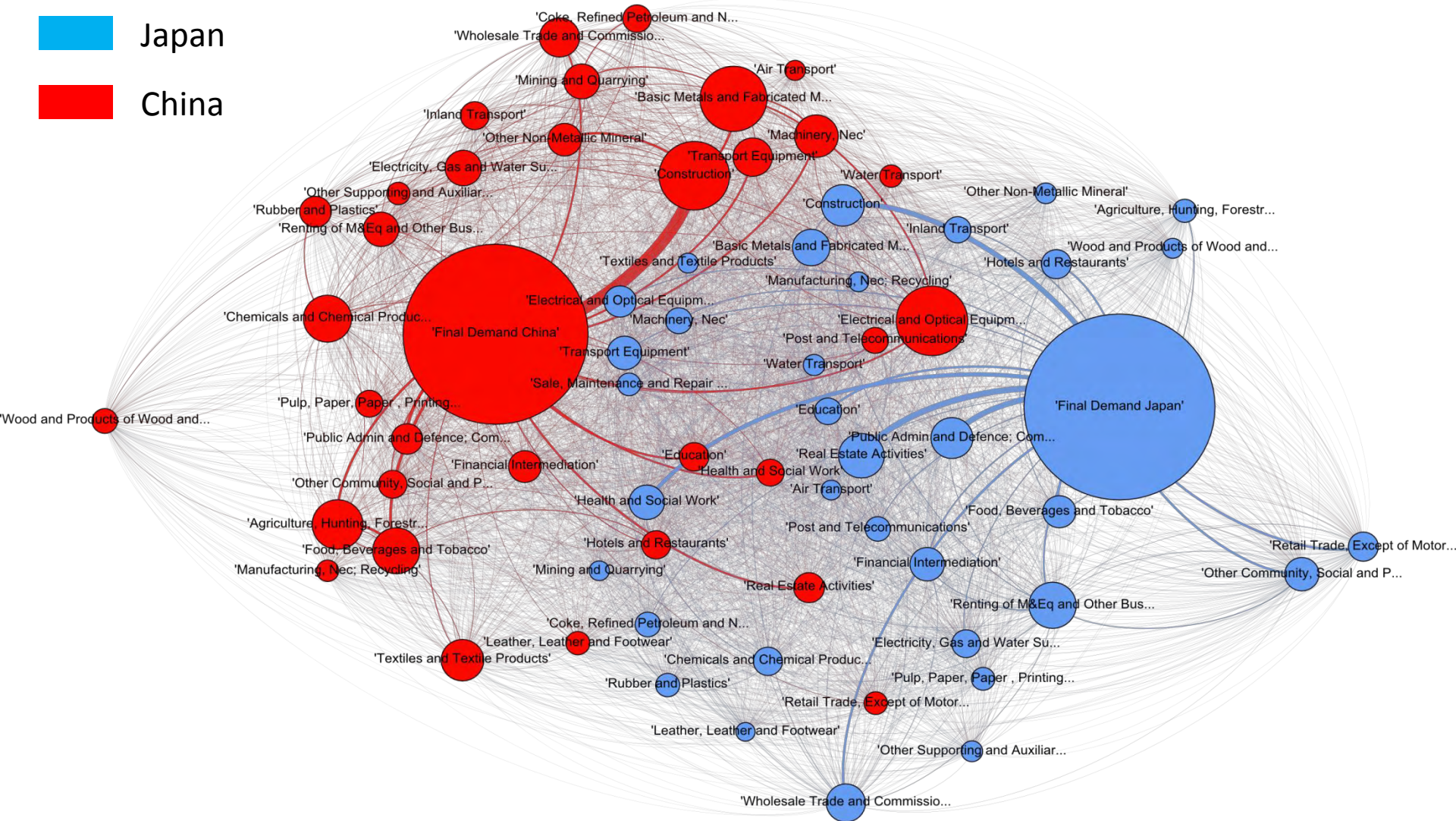
**Total value of Chinese exports: \$1.33 Trillion (\$US 2009)**

**China Export Value by Economic Sector (US\$ Billions 2009)**

\* Excludes exports to the Rest of World

# Inter and Intra-trade between Japan and China

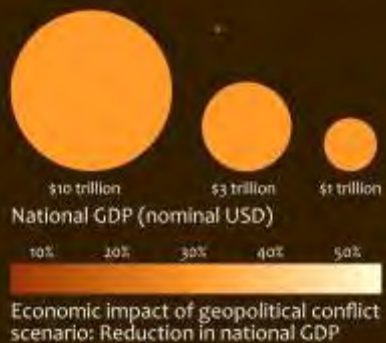
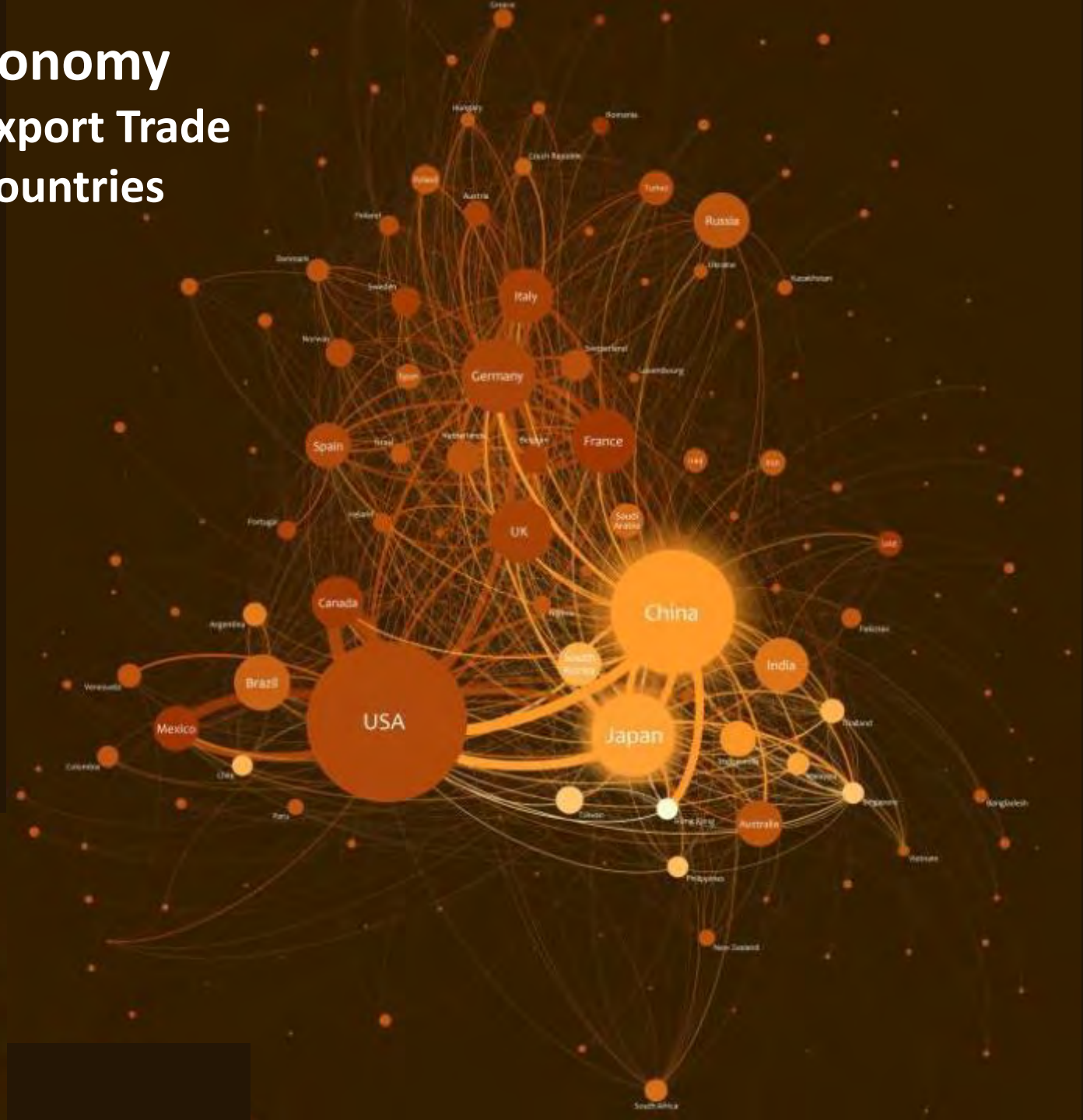
Japan  
China





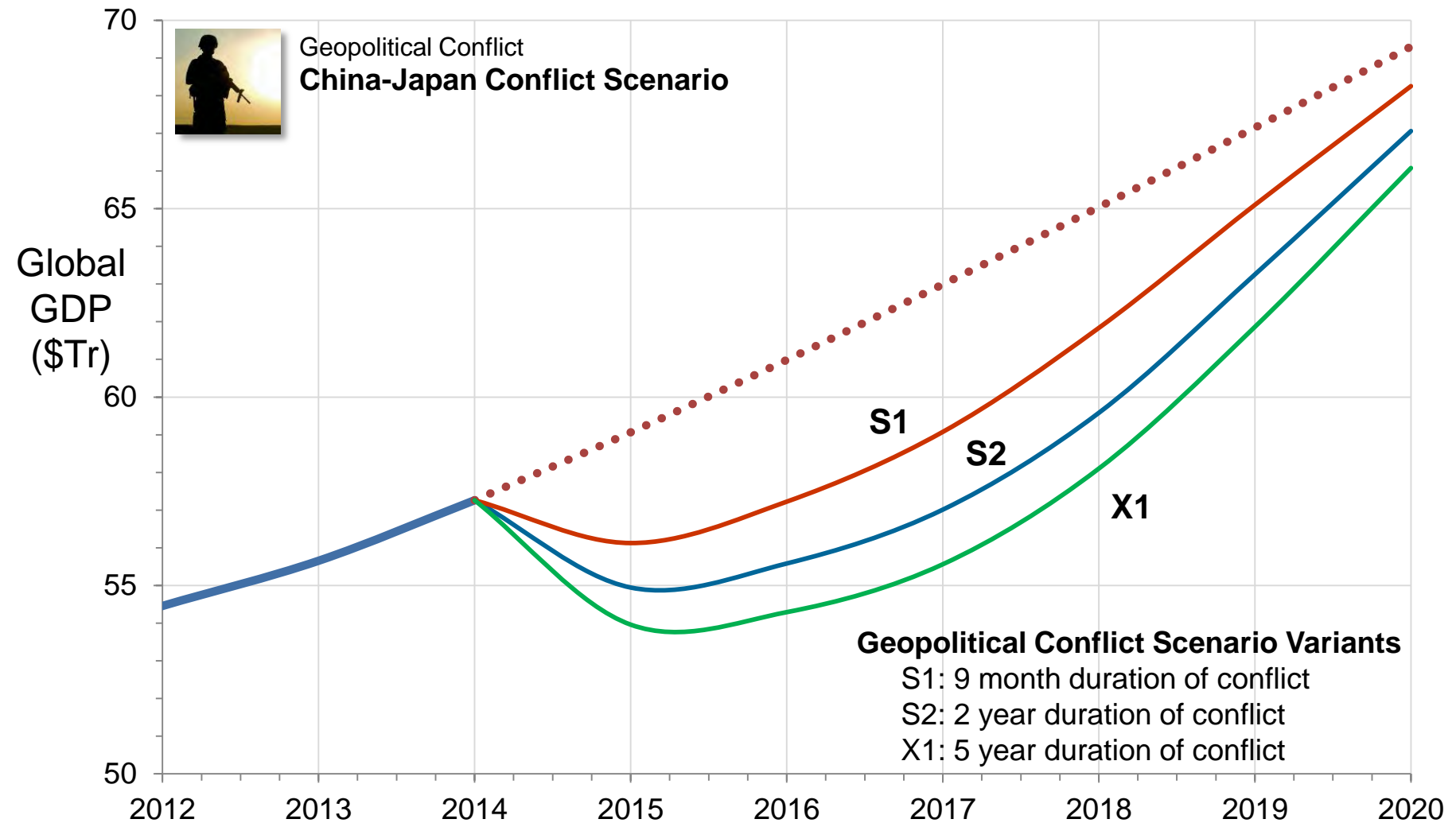
# Global Economy

## Imports and Export Trade between Countries





# Global GDP Impact of Scenario and Variants

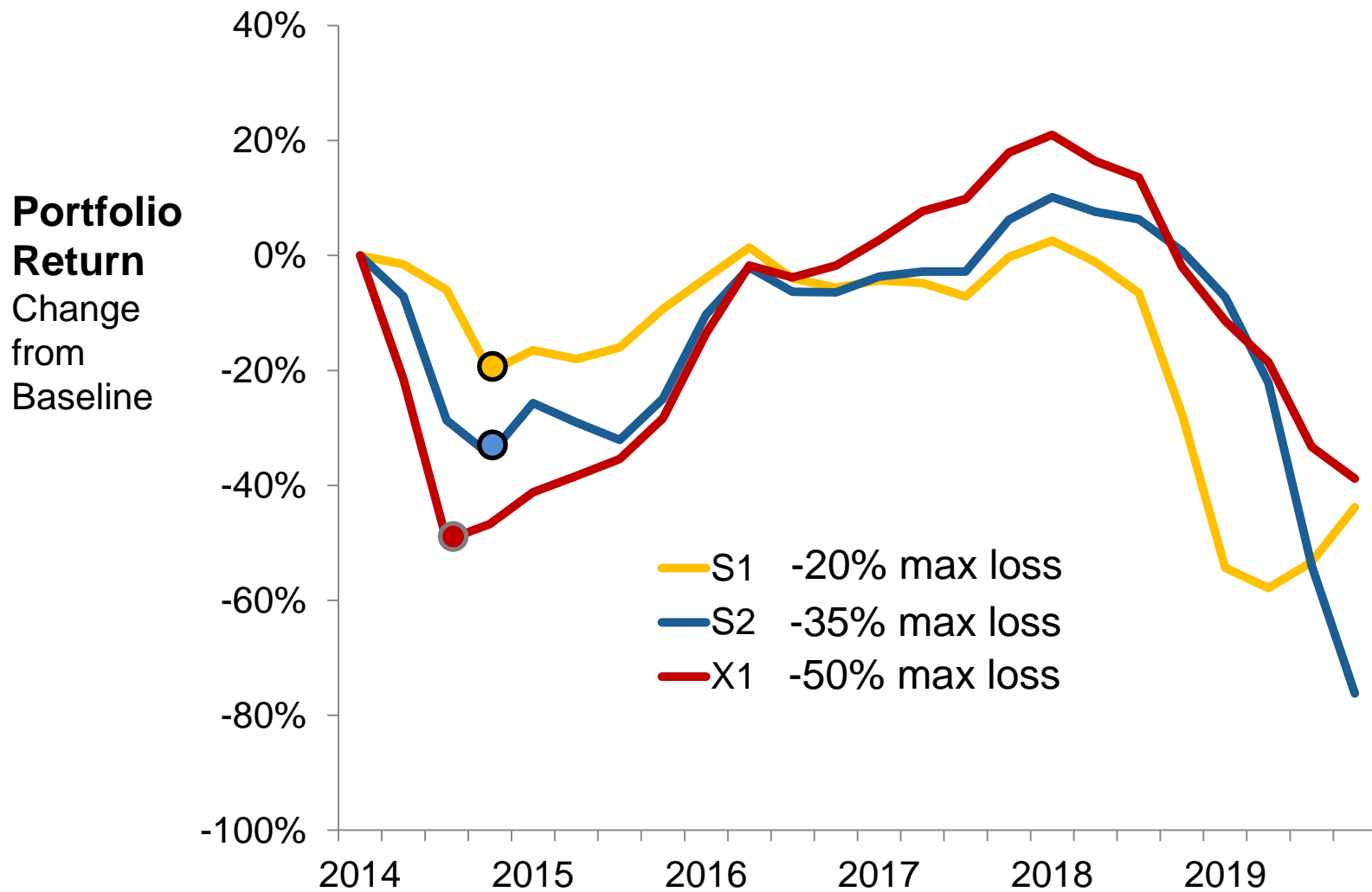


# Macroeconomic Conclusions

- China is hit hardest and recovers fastest
- Japan lags behind China and fails to recover
- Japan growth is hampered by prolonged high inflation
- GDP growth in the EU and USA is slow and protracted
- The global recession lasts between 1.5 and 2.5 years
- The global cost of the war is **17-32 Trillion \$US\***

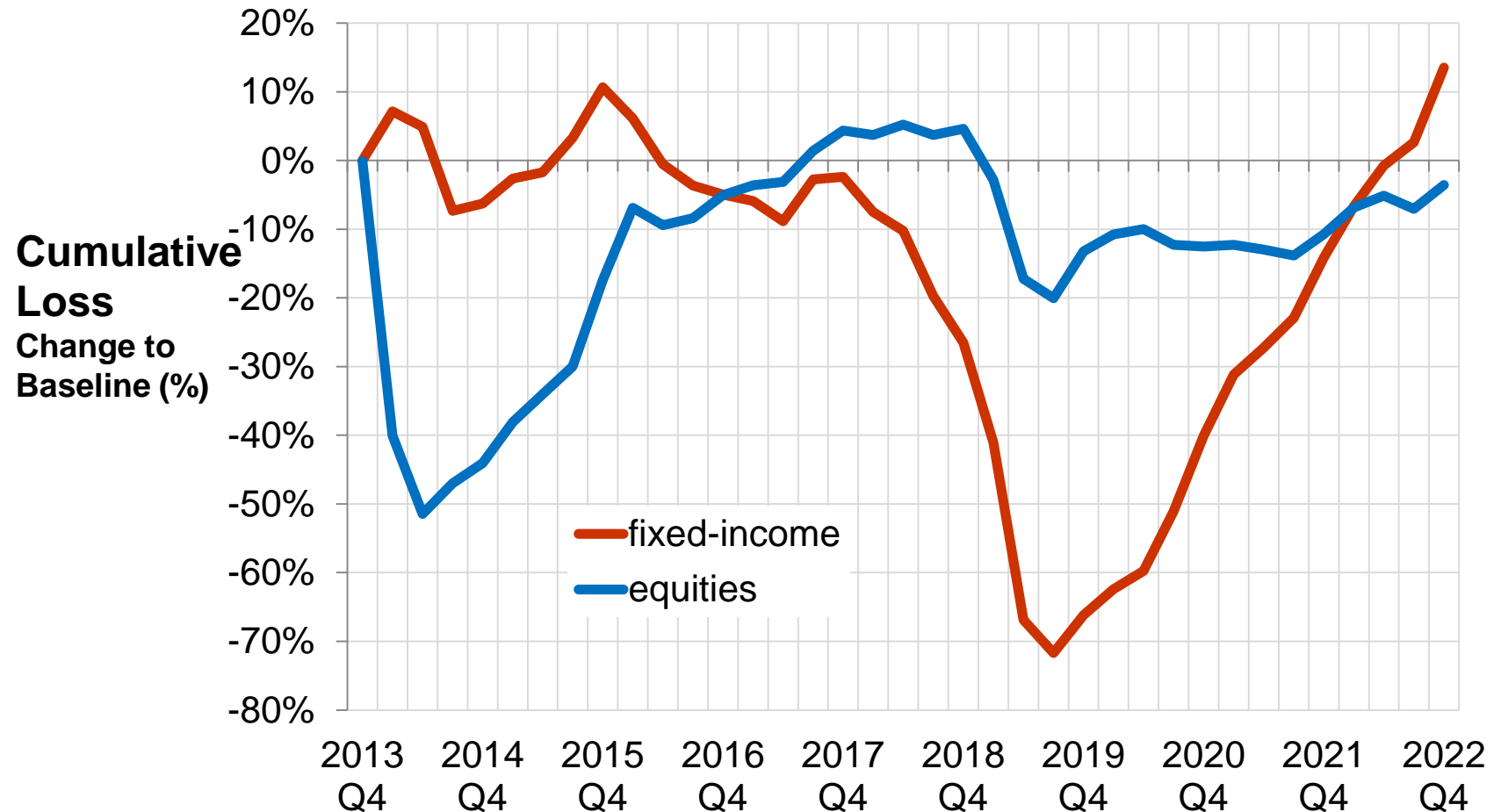
\* Estimated from five years of lost global output compared against the projected baseline scenario between 2014-2019

# Investment Portfolio Impact





# Equities vs Fixed Income



# China-Japan Conflict Summary Impacts

	S1	S2	X1
Conflict Duration Period (Market turmoil)	9 months	2 years	5 years
Export trade disruption period	1 year	5 years	5 years
Export trade loss during disruption	50%	70%	90%
Direct Damage Replacement Cost	\$120 Bn	\$300 Bn	\$500 Bn
Total Insured Loss	\$40 Bn	\$90 Bn	\$150 Bn?
Deaths	100,000	250,000	500,000
GDP@Risk Lost global output 2014-2019	\$17 Trillion	\$27 Trillion	\$32 Trillion
Investment Portfolio Impact (Relative to expectation baseline)	-20%	-35%	-50%
Duration of Degraded Returns	2.5 yrs	4 yrs	7 yrs

# How is the World Different After this Scenario?

- Shift in the structure of the global economy?
- SE Asia declines as a manufacturing powerhouse?
  - Re-emergence of US & European manufacturing capacity?
  - Emergence of new manufacturing centres in Brazil, India etc. & MINT countries?
- China ‘wins’ – De-Americanization of global economy?
  - US is seen to have failed as global superpower
  - China emerges as a major military superpower
  - \$ no longer the refuge of ‘flight-to-safety’



# Implications for Risk Management

- Does your organisation think about war?
  - Operational / Strategic / Investment implications?
- Do you know your *entire* business network?
  - Do you know and understand your *total* exposure?
- How prevalent are clusters?
  - The cost of *internal* business silos & *external* hubs?