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PACIFIC DETERRENCE INITIATIVE: AMERICA'S NEW DETERRENCE MECHANISM IN THE INDO-PACIFIC

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On December 27, 2021, President of the United States Joe Biden approved the National Defense Authorization Act for Fiscal Year (FY) 2022 (NDAA 2022) with a total outlay of $768.2 billion in defence spending, in which $7.1 billion was earmarked for the Pacific Deterrence Initiative (PDI), to counter the Chinese threat in the region.[1] This is a 40 per cent hike over the proposed amount submitted earlier to Congress.[2] It is the first installment of the total outlay of $27.7 billion to be spent through 2027 approved by the US Congress under the 'William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021' (NDAA FY 2021) the previous year.[3] The NDAA FY 2021 had allocated seed money of $2.2 billion for the PDI for "modernizing and strengthening the US Air Force's presence throughout the Pacific while also prioritizing new, innovative programs to

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1. "Biden Signs into Law $768 bil. Defense Bill", *NHK World*, December 27, 2021. https://www3.nhk.or.jp/nhkworld/en/news/20211228_04/. Accessed on January 3, 2022.
2. US Department of Defence, "President's Fiscal Year 2022 Defense Budget", May 28, 2021. https://www.defense.gov/Newsroom/Releases/Release/Article/2638711/the-department-of-defense-releases-the-presidents-fiscal-year-2022-defense-budg/. Accessed on January 2, 2022.
3. US Congress,"'William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021(NDAA FY 2021)", December 15, 2020. https://www.govtrack.us/congress/bills/116/hr6395/text. Accessed on January 5, 2022.

The PDI is a Guam-centred deterrence mechanism involving missile defence and long range attacking systems to "deter and defend the United States homeland, its citizens, and its allies and partners from aggression in the Indo-Pacific region".

evaluate flexible joint force operations in the coming decades".[4] The NDAA 2022 indicates that the US gives higher priority to the Indo-Pacific, along with Ukraine and the Middle East, in its strategic choices.[5]

The PDI allocation in NDAA 2022 is for "targeted investments for the Indo-Pacific region, which will be used to develop and procure defense capabilities in support of joint force lethality, especially in providing survivable strike and stand-off capability in a denied environment".[6] Also, the US will make "new investments to improve allied and partner capabilities, and to develop innovative concepts to counter threats through advanced technologies".[7] With the NDAA 2022, America seeks to bolster air superiority in the Indo-Pacific, and increased allocations for the US Marine Corps, Air Force, and Space Force with 6.2 percent, 2.3 percent, and 13.1 percent hikes respectively over the previous year.[8]

WHAT IS THE PACIFIC DETERRENCE INITIATIVE?

The PDI is a Guam-centred deterrence mechanism involving missile defence and long range attacking systems to "deter and defend the United States homeland, its citizens, and its allies and partners from aggression in the Indo-Pacific region".[9] It is inspired by the Pentagon's multi-year $22 billion project European Defence Initiative (EDI), established following Russia's annexation of Crimea in 2014. The main objectives of the PDI are: enhancing

4. Craig Singleton, "Taking on China-Breaking Down FY 2021 NDAA",Foundation for Defence of Defence of Democracies, December 11, 2020. https://www.fdd.org/analysis/2020/12/11/taking-on-china-breaking-down-the-fy21-ndaa/. Accessed on January 4, 2022.
5. Air Marshal Anil Chopra, "US Defence Budget FY2022—Inferences", *CAPS Issue Brief*, January 30, 2022. https://capsindia.org/us-defence-budget-fy2022-inferences/. Accessed on February 1, 2022.
6. n. 2.
7. Ibid.
8. Chopra, n. 5.
9. n. 2.

the United States' deterrence and defence posture; increasing readiness and capability in the Indo-Pacific region; and deepening cooperation with allies and partners.[10] The central tenets of the PDI are jointness of forces deployed in the Western and Central Pacific, harmonisation of various systems under each force, as well development of new long range systems to counter the Chinese threat.[11] It also aims to enhance the US' air superiority in the theatre closer to China, crippling China's ability to launch a second strike, with preemptive actions. The new long range systems that the US is developing are expected to dismantle China's command and control system located on its shores, thus, preventing China's counter-attack against the US forces and locations in the Pacific. Under the PDI, the US is the main actor in deterring the threat from China, seeking limited support from its allies in the region. It aims to disrupt, deter, and defeat the Chinese threat locally, thus, preventing it from reaching the US homeland.

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The hallmark of the PDI is 'jointness', which is different from the US' erstwhile 'rebalancing' strategy, in which the US Navy and Air Force had separate operational strategies, called 'Pivot' and 'Air Sea Battle (ASB)' respectively. Earlier, the US Indo-Pacific Command (INDOPACOM), responsible for managing security in the Indo-Pacific, had sought $4.68 billion for FY 2022 for establishing the PDI.[12] However, the amount allocated under the NDDA FY 2022 for the PDI would mainly be spent for 'joint force lethality'; developing the joint forces' long-range strike capability and

10. n. 3.
11. US Government Publishing Office, "National Defense Authorization Act for Fiscal Year 2022", Senate 117th Congress 1st Session Report 2021, Washington. https://www.govinfo.gov/content/pkg/CRPT-117srpt39/pdf/CRPT-117srpt39.pdf. Accessed on January 3, 2022.
12. "US Indo-Pacific Command Wants $4.68B for New Pacific Deterrence Initiative", *USNI News*, March 2, 2021. https://news.usni.org/2021/03/02/u-s-indo-pacific-command-wants-4-68b-for-new-pacific-deterrence-initiative. Accessed on January 10, 2022.

capacity.[13] To make the joint forces operations more effective with long-range capability, the Department of Defence (DoD) had last year requested for an additional amount of $6.6 billion beyond the PDI demands of $5.1 billion to develop and field multi-Service, multi-domain offensive long range fires.[14] In short, the PDI focusses on "joint force operations in the Indo-Pacific, primarily west of the International Date Line (Fig 1), and the main activities are:

(1) Modernise and strengthen the presence of the United States armed forces, including those with advanced capabilities; (2) improve logistics and maintenance capabilities and the pre-positioning of equipment, munitions, fuel, and material; (3) carry out a programme of exercises, training, experimentation, and innovation for the joint force; (4) improve infrastructure to enhance the responsiveness and resilience of the United States armed forces; (5) build the defence and security capabilities, capacity, and cooperation of allies and partners.[15]

Fig. 1: International Date Line

Source: Britannica, "International Date Line", https://www.britannica.com/topic/International-Date-Line

13. Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, "Defence Budget Overview," May 2021. https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2022/FY2022_Budget_Request_Overview_Book.pdf. Accessed on January 3, 2022.
14. n. 2.
15. n. 3.

The PDI contains the setting up of a permanent and persistent land-based integrated air and missile defence system and associated weapon delivery system on Guam, and a homeland defence radar in Hawaii aimed to protect the US homeland.[16] The PDI helps to establish land-based missiles, command and control systems, and long-range artillery systems, with which the Pentagon seeks to bolster its capabilities across the Pacific region to deter 'pacing challenges' from the People's Republic of China (PRC).[17] The US wants to send signals to its potential adversaries that any "preemptive military action will be too costly and likely to fail, by projecting credible, combat power at the time of crisis." With the PDI, the US believes that it would be able to maintain a credible balance of power in the Western Pacific, and assure US allies of its commitment to protecting its interests in the region.

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The PDI is entirely different from the Cold War style hub-and-spoke model in which "extended deterrence"[18] had been the central principle where local partners had to play key roles by stationing US troops in their territory for their security as well as working as the first line of defence for the US. However, an array of new systems developed by China as part of its military modernisation programme, such as Anti-Ship Ballistic Missiles (ASBMs), Hypersonic Glide Vehicles (HGVs), and the Anti-Access Area-Denial (A2/AD) capabilities designed to thwart the US' power projection and deployment in the Western Pacific, have proved the 'extended deterrence' ineffective to deter the Chinese threat. US allies and thousands of US troops in East Asia

16. Ibid.
17. Ibid.
18. The US' Air Force Doctrine notes, "Extended deterrence is a commitment to deter and, if necessary, to respond across the spectrum of potential nuclear and non-nuclear scenarios in defense of allies and partners. This commitment is often described as providing a 'nuclear umbrella.' Extended deterrence also serves as a nonproliferation tool by obviating the need for allies and partners to develop or acquire and field their nuclear arsenals." For details, see "Extended Deterrence", Air Force Doctrine Publications (AFDP) 3-72, Curtis E. Lemay Centre, US Air Force, December 18, 2020. https://www.doctrine.af.mil/Portals/61/documents/AFDP_3-72/3-72-D12-NUKE-OPS-Extended-Deterrence.pdf . Accessed on January 3, 2022.

China joined the World Trade Organisation (WTO) in 2001 which further helped its economy grow strongly and it became the second largest economy after the US, overtaking Japan, in 2010. China translated its economic achievement into building a strong and modern military force.

would be vulnerable to a Chinese attack if a conflict between the US and China were to take place in East Asia. Even its prized Carrier Strike Group (CSG), the most potent system of the US power projection, could not operate freely in the Western Pacific, hindering the US' ability for a preemptive attack targeting China's command and control systems. So instead of exposing its CSG and local bases to a Chinese attack, the US can target the Chinese soil from Guam with long range systems. The US territory of Guam is 1,800 miles away from mainland China and lies on the boundary of China's second island chain—the area within the second island chain that China considers as Chinese waters.

In fact, the PDI is the continuation of the previous US Administration's policy towards the Asian region: "preventing the rise of peer competitors that might challenge US economic and military superiority".[19] In the early periods of the post-Cold War era, the US foreign policy was focussed on preventing the world from returning to competitive multipolarity, and forestalling the emergence of a hostile power seizing control of Eurasia's resources.[20] The US strategy towards China under the Bill Clinton Administration was "to integrate China into US-designed institutions and markets".[21] The dominant policy towards Beijing at that time was "engagement" through which "China could be neutered as a challenge to the status quo, by giving it incentives to join regional and global society".[22] China joined the World Trade Organisation (WTO) in 2001 which further helped its economy grow strongly and it

19. R.D. Hooker, Jr., "The Grand Strategy of the United States," *INSS Strategic Monograph*, Institute for National Strategic Studies National Defense University, Washington D.C., 2014, pp. 7-8.
20. Patrick Porter, "Why America's Grand Strategy Has Not Changed: Power, Habit, and the US Foreign Policy Establishment," *International Security*, vol. 42, no. 4, 2018, pp. 9-46.
21. Ibid., p. 9.
22. Gerald Segal, "East Asia and the 'Constrainment' of China," *International* Security, vol. 20, no. 4, 1996, pp. 107-135.

became the second largest economy after the US, overtaking Japan, in 2010. However, China translated its economic achievement into building a strong and modern military force and focussed on developing systems to gain strategic advantage over its adversaries in the near seas area, which includes the East and South China Seas (ESCS).[23] Later, Washington realised that China had attained the capability to challenge the US' economic and military superiority in East Asia. As China translated its economic strength into its military preparedness to deter the US, the Obama Administration announced the US' "pivot" to Asia in 2011, a major shift of America's focus from the Middle East to East Asia, aimed to contain China as well as to preserve freedom of navigation in the Indo-Pacific.[24] However, the pivot became ineffective largely because of the cut in defence expenditure due to the impact of the 2008 financial crisis and the US' overstretch on the war on terror.[25] Conversely, China has become more assertive on territorial disputes and is expanding its influence from East Asia to the Indian Ocean and to the Mediterranean, as well as to the Eurasian theatre through its Belt and Road Initiative (BRI). In this regard, one of the major challenges for the US is how to constrain China militarily in East Asia and maintain its own preponderance in the entire Indo-Pacific region without involving a direct collision with China.

Through the PDI, the US seeks to embolden its deterrence against China's growing naval, air and missile forces, by focussing on improving its capacity which includes an advanced radar system, integrated air defence capability, and long-range weapon systems.

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23. Joshy M . Paul, "China's Naval Modernisation: Theory and Practice", *Air Power Journal*, vol. 15 no. 3, 2020, pp. 91-117.
24. Hilary Clinton, "America's Pacific Century" *Foreign Policy*, October 11, 2011. https:// foreignpolicy.com/ 2011/10/11/Americas-pacific-century/. Accessed on January 10, 2022; Janine Davidson, "The US 'Pivot to Asia,'" *American Journal of Chinese Studies*, vol. 21, special issue (June), 2014, pp. 77-82.
25. Renato Cruz De Castro, "The Obama Administration's Strategic Rebalancing to Asia: *Quo Vadis* in 2017?" *Pacific Focus*, vol. 33, no. 2, pp. 179-208.

The mainstay of China's A2/AD are the DF 21D and DF 26D Intermediate Range Ballistic Missiles (IRBMs), which are also known as "carrier killer" missiles because of their ability to hit moving targets such as aircraft carriers, and an array of cruise missiles deliverable from both the land and the sea.

and long-range weapon systems. Washington aims to establish its military advantage over China in all domains—in the skies and space, on the seas and land, and in cyber space.[26] Ever since the 'sputnik moment', the US has strategised to develop new systems and spent billions of dollars to gain the quantitative and qualitative edge over its nearest adversary. This started in the 1960s and continued through the 1970s and 1980s, but in the 'unipolar world' of the post-Cold War era, the US did not focus on any specific system targeting a particular country—instead, its approach was to maintain its global supremacy. On the other hand, China pursued a targeted military modernisation programme under the People's Liberation Army (PLA) tradition of pursuing military objectives from a position of relative weakness. As a result, China focussed on developing specific systems as part of its military modernisation programme launched in the 1990s, and developed sophisticated A2/AD systems targeting US naval platforms and other military installations closer to China. The mainstay of China's A2/AD are the DF 21D and DF 26D Intermediate Range Ballistic Missiles (IRBMs), which are also known as "carrier killer" missiles because of their ability to hit moving targets such as aircraft carriers, and an array of cruise missiles deliverable from both the land and the sea. The US base at Guam is vulnerable to the DF 26D, so the missile is also known as the "Guam killer". In 2017, China tested a Hypersonic Glide Vehicle (HGV) mounted on a DF 17 ballistic missile; with a range of 1,400 km, the HGV can supposedly evade the US' existing anti-missile defence systems meant for East Asia.[27]

26. n. 2.
27. Ankit Panda, "Introducing the DF-17: China's Newly Tested Ballistic Missile Armed With a Hypersonic Glide Vehicle", *The Diplomat*, December 28, 2017. https://thediplomat.com/2017/12/introducing-the-df-17-chinas-newly-tested-ballistic-missile-armed-with-a-hypersonic-glide-vehicle/. Accessed on January 10, 2022.

Regarding China's advancement in capabilities, the US National Defence Strategy 2018 assessed that China has been harbouring the ambition of "seeking Indo-Pacific regional hegemony in the near-term and displacement of the United States to achieve global preeminence in the future".[28] Similarly, the January 2021 Congressional Research Service report noted that "China has been featuring around 100 intercontinental ballistic missiles and hundreds of theater-range conventional missiles, including anti-ship ballistic missiles designed to target adversary aircraft carriers", which would cripple the US' ability to interdict China's A2/AD mechanism in the Western Pacific.[29] Further, in its annual report to the Congress in November 2021, the Department of Defence opined, "The PLA has fielded, and is further developing, capabilities to provide options for the PRC to attempt to dissuade, deter, or, if ordered, defeat third-party intervention during a large-scale, theater campaign such as a Taiwan contingency.… [The] A2/AD capabilities are to date the most robust within the first island chain, although the PRC is beginning to field significant capabilities capable of conducting operations out to the second island chain and seeks to strengthen its capabilities to reach farther into the Pacific Ocean and throughout the globe".[30] America had initially underestimated the scope and pace of the Chinese military modernisation, including the anti-access capabilities, but later it acknowledged its effectiveness and remarked that with the A2/AD capabilities, China is capable of "conducting long-range attacks against adversary forces who might deploy or operate within the Western Pacific Ocean".[31] Thus, the US seeks to deter the threat at the local level and also prevent it from reaching the homeland at any cost. So the

28. US Department of Defence, "Summary of the 2018 National Defense Strategy of The United States of America: Sharpening the American Military's Competitive Edge," Washington D.C., 2018, p. 2. https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf . Accessed on January 10, 2022.
29. Congressional Research Service, "China Primer: The People's Liberation Army (PLA)", January 5, 2021. https://crsreports.congress.gov/product/pdf/IF/IF11719/4. Accessed on January 10, 2022.
30. US Department of Defence, "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2021". https://media.defense.gov/2021/Nov/03/2002885874/-1/-1/0/2021-CMPR-FINAL.PDF. Accessed on January 8, 2022.
31. Ibid., p. 77.

PDI is a response to various measures that China has adopted over the years to deter the US primacy and to establish its 'local superiority' in the Western Pacific.

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BACKGROUND: CHINA'S STRATEGY OF 'LOCAL SUPERIORITY' IN THE WESTERN PACIFIC

Achieving 'local superiority' in a theatre has been the central principle of China's defence strategy. Theatre level local superiority against a superior force was practised initially during the civil war by the Chinese Communist Party against the Nationalist Army;[32] experimented with during the Korean War against the US-led international forces; successfully implemented against the Kuomintang of Taiwan in capturing a few islands adjacent to the mainland;[33] and became the PLA's main operational strategy in the post-Cold War period against the US' preponderance in East Asia.[34] Local superiority can be achieved through force concentration in a local area of the war with effective offensive and counter-attack capability. China formally included a 'locally' focussed winning strategy in its military doctrine in the late 1980s when it shifted its attention from the continental north to the maritime south.[35] This was a result of the dissipation of the Soviet threat by the end of the 1980s. China has realised that now onwards, new conflicts would occur at the local level, with a limited period, especially over disputed territory in the maritime domain.[36] The 1991 Gulf War where the US experimented with new technology to win the war in a short period, brought in the importance of new technology in China's strategic thinking to gain local

32. M. Taylor Fravel, *China's Military Strategy Since 1949: Active Defense* (Princeton: Princeton University Press, 2019).
33. Alexander Chieh-cheng Huang, "The Chinese Navy's Offshore Active Defense Strategy", *Naval War College Review*, vol. 47, no. 3, 1994.
34. Fravel, n. 32.
35. Ibid.
36. Ibid.

superiority, and it conceptualised the strategy of "winning local wars under modern, especially high technology, conditions",[37] which has been modified in its 2015 Defence White Paper, *China's Military Strategy,* as "Winning Informationized Local Wars".[38]

The first island chain covers the Yellow Sea, East China Sea and South China Sea, also known as the near seas in the Chinese naval strategy. China feels that the American naval presence closer to its shores is a major security threat, both for the state and the survival of the Chinese Communist Party.

China launched its military modernisation programme in the mid-1990s, especially after the 1996 Taiwan fiasco, to protect its interests and to overcome US military superiority at least within the first island chain.[39] The first island chain covers the Yellow Sea, East China Sea and South China Sea, also known as the near seas in the Chinese naval strategy. China feels that the American naval presence closer to its shores is a major security threat, both for the state and the survival of the Chinese Communist Party. The independence of Taiwan, with US assistance, is considered an existential threat for both. Gaining local military superiority would reduce the willingness of the United States to intervene on behalf of Taiwan in the case of a cross-strait military clash by raising the costs of involvement for the US. Since the Taiwan fiasco, China's focus has been to develop offensive systems that could prevent the US' force advancement to the Chinese area in support of Taiwan, and for that, Beijing has sought to acquire systems both internally and externally.[40]

37. Ibid., p. 182.
38. Ministry of National Defence, *China's Military Strategy 2015*, People's Republic of China, Beijing, May 2015. http://eng.mod.gov.cn/Database/WhitePapers/2015-05/26/content_4586711.htm. Accessed on January 10, 2022; M. Taylor Fravel, "China's New Military Strategy: 'Winning Informationized Local Wars'," *China Brief*, vol. 15, no. 13, July 2, 2015. https://jamestown.org/program/chinas-new-military-strategy-winning-informationized-local-wars/. Accessed on January 11, 2022.
39. Richard Bitzinger, "Modernising China's Military, 1997-2012", *China Perspective*, vol. 8, no. 4, 2011, pp. 7-15.
40. Thomas G. Mahnken, "China's Anti-Access Strategy in Historical and Theoretical Perspective," *The Journal of Strategic Studies*, vol. 34, no. 3, 2011, pp. 299-323.

The A2/AD capabilities that China has developed have been through the Chinese way of 'original innovation' by "reassembling existing technologies in different ways to produce new breakthroughs".

The A2/AD capabilities that China has developed have been through the Chinese way of 'original innovation' by "reassembling existing technologies in different ways to produce new breakthroughs and absorb and upgrade imported technologies".[41] China adopted a "hybrid strategy that focused primarily on the assimilation of domestic and foreign knowledge and technologies that are improved upon so that they become original".[42]

China adopted the "active offshore defence" strategy in the late 1980s to actively defend its offshore area which includes the "four large seas" i.e. Bohai, Yellow, East China and South China Seas, plus the continental shelf out to the 'first island chain.[43] With this objective, it has developed an array of offensive systems which include sophisticated Surface-to-Air Missiles (SAMs), Anti-Ship Cruise Missiles (ASCMs), precision-guided conventional (both short-range and intermediate range) ballistic missiles, Anti-Ship Ballistic Missiles (ASBMs), and advanced Command, Control, Computers, Communications Intelligence, Surveillance and Reconnaissance (C4ISR) systems.[44] China's "long-range precision theatre strike systems—primarily cruise and ballistic missiles and manned aircraft— and anti-ship weapons," have been dubbed as major concerns to the US forces deployed in the area as well as its allies and partners in the Asia-Pacific region.[45] The main theatre

41. Tai Ming Cheung, "The Chinese Defense Economy's Long March from Imitation to Innovation," *The Journal of Strategic Studies*, vol. 34, no. 3, 2011, pp. 325-354.
42. Ibid.
43. Huang, n. 33, p. 18.
44. Mahnken, n. 40.
45. Timothy M. Bonds, Joel B. Predd, Timothy R. Heath, Michael S. Chase, Michael Johnson, Michael J. Lostumbo, James Bonomo, Muharrem Mane, Paul S. Steinberg, *What Role Can Land-Based, Multi-Domain Anti-Access/Area Denial Forces Play in Deterring or Defeating Aggression?* (Santa Monica, Calif.: RAND, 2017), p. 75. https://www.rand.org/pubs/research_reports/RR1820.html. Accessed on January 14, 2022.

strike systems are short to medium range surface-to-surface ballistic missiles and YJ-83 anti-ship missiles (Table 1).

Table 1: Chinese Theatre Missile Systems

System	Range (km)	Guidance	Type	Munitions	Number of Inventory
WS-1B/ A100	180	INS, GPS	Land-attack ballistic missile (potential anti-ship role)	235 kg with up to 500 cluster munitions	Uncertain—but potentially thousands (estimated to cost ~$100K)
WS-2/A200	200	INS, GPS	Land-attack ballistic missile (potential anti-ship role)	235 kg with up to 500 cluster munitions	500 cluster munitions Uncertain—but potentially thousands (estimated to cost ~$100K)
WS-3/A300	300	INS, GPS, terminal homing guidance	Land-attack ballistic missile (potential anti-ship role)	235 kg with up to 500 cluster munitions	Uncertain—but potentially thousands (estimated to cost ~$100K)
DF-11/A	280–350	INS, GPS, with terminal control	Land-attack ballistic missile (potential anti-ship role)	500–800 kg	700–800
DF-15/A/B	600–800	INS with terminal control	Land-attack ballistic missile (potential anti-ship role)	600 kg	300–400

YJ-83	160	INS, GPS, active/ passive radar, infrared	Anti-ship cruise missile	513 kg	Not available

Source: Timothy M. Bonds, Joel B. Predd, Timothy R. Heath, Michael S. Chase, Michael Johnson, Michael J. Lostumbo, James Bonomo, Muharrem Mane, Paul S. Steinberg, *What Role Can Land-Based, Multi-Domain Anti-Access/Area Denial Forces Play in Deterring or Defeating Aggression?* (Santa Monica, Calif.: RAND, 2017), p. 76. https://www.rand.org/pubs/research_reports/RR1820.html. Accessed on January 14, 2022.
Note: GPS = Global Positioning System; INS = Inertial Navigation System.

A typical CSG is a large combatant formation with one or two aircraft carriers, anti-submarine, air defence, and missile defence destroyers and cruisers, as well as logistic ships. Together, they may number from 10 to 15 units.

The 1996 Taiwan fiasco, where the US deployed the USS *Nimitz* (CVN 68) and *Independence* (CV 62) Carrier Battle Groups (CBGs) in response to Chinese missile tests and military exercises in the Taiwan Strait to intimidate Taiwan from taking a position of independence, proved China's helplessness against American naval power near its shores.[46] After that, China came to the conclusion that the US aircraft Carrier Strike Group (CSG), is the most dangerous system for China's security, and also the representative of US power projection in the region. Without developing weapons that can neutralise the CSG, China will not be able to counter US power in the Western Pacific. A typical CSG is a large combatant formation with one or two aircraft carriers, anti-submarine, air defence, and missile defence destroyers and cruisers, as well as logistic ships. Together, they may number from 10 to 15 units. Each carrier would have a complement of about 75 combat and reconnaissance aircraft, forming

46. Andrew S. Erickson and David D. Yang, "Using the Land to Control the Sea? Chinese Analysts Consider the Antiship Ballistic Missile," *Naval War College Review*, vol. 62, no. 4, 2009, pp. 53-86.

the main strike power of the force. In addition to their defensive capabilities, the warships are also heavily armed with guns and anti-ship and land-attack missiles, as well as having Ballistic Missile Defence (BMD)-capable destroyers and cruisers equipped with the Aegis system. Besides, the combat radius of carrierborne fighter jet is around 2,200 km (F-35C), so if China wanted to deter the CSG from approaching the Chinese shores, it had to hit the CSG at a distance beyond 2,000 km from the Chinese coast. China's answer to the US CSG were the land-based ASBMs DF 21D and DF26 D.[47] The DF 21 D has a range of up to 2,000 km, while the new version, the DF 26 D, has a range of 3,000-4,000 km, capable of striking most US military bases in the Western Pacific Ocean, including Guam.[48]

China's development of an ASBM has been a game-changer in the US-China power balance and also China's asymmetric advantage against the US. The US advantage in the Western Pacific was dependent on the aerial strike launched from forward bases and aircraft carriers, but with the ASBM, the US has lost that advantage over China. China is the first country ever to develop a ballistic missile capable of hitting a moving target. The Pentagon had officially raised the concern about China's development of an ASBM in its report to the Congress in 2005, wherein it stated:

> Although ballistic missiles in the past have traditionally been used to attack fixed targets on land, observers believe China may now be developing Theater-range Ballistic Missiles (TBMs) equipped with Maneuverable Reentry Vehicles (MaRVs). Observers have expressed strong concern about this potential development, because such missiles, in combination with a broad-area maritime surveillance and targeting system, would permit China to attack moving US Navy ships at sea. The US Navy has

47. S Chandrashekar, RN Ganesh, CR Raghunath, Rajaram Nagappa, N Ramani and Lalitha Sundaresan, "China's Anti-Ship Ballistic Missile Game Changer in the Pacific Ocean", National Institute of Advanced Studies, Bangalore, 2011. https://nias.res.in/publication/chinas-anti-ship-ballistic-missile-game-changer-pacific-ocean. Accessed on January 16, 2022.
48. Hans Kristensen, "China's New DF-26 Missile Shows Up At Base In Eastern China", Federation of American Scientists, January 21, 2020. https://fas.org/blogs/security/2020/01/df-26deployment/.

> not previously faced a threat from highly accurate ballistic missiles capable of hitting moving ships at sea. Due to their ability to change course, MaRVs would be more difficult to intercept than non-maneuvering ballistic missile reentry vehicles.[49]

Since then, the US Department of Defence officials and strategic analysts have started expressing concern about the proven capability of China's ASBMs, and also about the US' ability to exert military influence on China's maritime periphery.[50] They have also called for the need to take counter-measures to maintain US primacy in the region, required to prevent China from gaining local superiority as to it can challenge US manoeuvrability in the Western Pacific.[51] China considers the development of an asymmetric weapon against a superior enemy as an 'assassin's mace', and believes that the ASBM has been one of the most successful weapons because of its ability to detect, identify, and track the target using some combination of land, sea, air, and space-based surveillance assets against the world's most sophisticated and best defended naval target in the world today—the US CSG.[52]

The events that occurred in the latter part of the first decade of this century led to a growing realisation among the Chinese elites that the balance

49. Ronald O'Rourke, "China Naval Modernization: Implications for US Navy Capabilities—Background and Issues for Congress; Theatre Range Ballistic Missiles", CRS Report for Congress, November 18, 2005 p. 5. https://www.everycrsreport.com/files/20051118_RL33153_94380eebad4327bd40f037081f276883c4a6a59a.pdf. Accessed on January 15, 2022.
50. Erickson and Yang, n. 46; Andrew Erickson and Gabe Collins, "China Deploys World's First Long-Range, Land-Based 'Carrier Killer': DF-21D Anti-Ship Ballistic Missile (ASBM) Reaches 'Initial Operational Capability' (IOC)", *China SignPost*, no. 14, December 26, 2010. www.andrewerickson.com/2010/12/china-deploys-world%E2%80%99s-first-long-range-land-based-%E2%80%98carrierkiller%E2%80%99-df-21d-anti-ship-ballistic-missile-asbm-reaches-%E2%80%9Cinitial-operational-capability%E2%80%9D-ioc/. Accessed on January 20, 2022.
51. Hal Brands, "Choosing Primacy: US Strategy and Global Order at the Dawn of the Post-Cold War Era," *Texas National Security Review*, vol.1, no. 2, 2018, pp. 9-33; Evan Braden Montgomery, "Contested Primacy in the Western Pacific: China's Rise and the Future of US Power Projection," *International Security,* vol. 38, no. 4, 2014, pp. 115-149; Robert S. Ross, "US Grand Strategy, the Rise of China, and US National Security Strategy for East Asia", *Strategic Studies Quarterly*, vol. 7, no. 2, 2013, pp. 20-40; Barry R. Posen, "Command of the Commons: The Military Foundation of US Hegemony", *International Security,* vol. 28, no. 1, 2003, pp. 5-46.
52. Andrew S. Erickson, *Chinese Anti-Ship Ballistic Missile (ASBM) Development: Drivers, Trajectories, and Strategic Implications* (Washington, DC: The Jamestown Foundation, 2013).

of power in East Asia is changing in favour of China, with the US declining more rapidly than they had thought, while the Chinese economy has been rising.[53] The 2008 financial crisis in the US and the 2008 Beijing Olympics were the turning points in this shift; the former crippled the US economy that had always propped up the US' grandstanding, while the latter was a show of strength of Beijing's ability to conduct a major global event successfully. In the same year, China surpassed Japan as the second largest economy after the US, and in March, Xi Jinping was anointed as the vice president of China, to become the Chinese president after Hu Jintao's term, ending in 2013. Xi had already become a member of the Politburo Standing Committee, the highest decision-making body of the Chinese Communist Party (CCP), and was the first among equals of the fifth generation leaders promoted by the Party to guide China in the new century. Since then, China has sought an 'active foreign policy', given the US' troubles on the economic crisis and the war on terror; also the Chinese leadership believed that the US would never to able to region its unipolar position. Subsequently, the CCP's Central Work Conference on Foreign Affairs held in July 2009, sought to adjust Deng Xiaoping's famous dictum of 'keeping a low profile' into 'get something accomplished', and called for a more 'active' foreign policy for China.[54] In 2013, under President Xi's stewardship, the dictum was further modified into 'striving for achievement', a shift from Deng's 'peaceful rise' to Mao's vision of lifting China into the league of great powers.[55] Since then, China has pursued a more 'assertive' posture in territorial disputes and launched a construction spree of naval ships to fulfill Xi's "China Dream" of national rejuvenation.[56]

53. Michael Yahuda, "China's New Assertiveness in the South China Sea", *Journal of Contemporary China*, vol. 22, no. 81, 2013, pp. 446-459.
54. Bonnie S. Glaser and Benjamin Dooley, "China's 11th Ambassadorial Conference Signals Continuity and Change in Foreign Policy", *China Brief*, vol. 9, no. 22, November 2009. https://jamestown.org/program/chinas-11th-ambassadorial-conference-signals-continuity-and-change-in-foreign-policy/. Accessed on January 20, 2022.
55. Ling Wei, "Striving for Achievement in a New Era: China Debates its Global Role", *The Pacific Review*, vol. 33, no. 3-4, 2020, pp. 413-437.
56. "Structuring the Chinese Dream", *China Daily*, January 25, 2014. http://usa.chinadaily.com.cn/opinion/2014-01/25/content_17257856.htm. Accessed on January 22, 2022.

The PLA Navy has had an unprecedented naval expansion from 2000 through 2018. It had 216 ships in 2005 that increased to 333 in 2020, and projected to be 425 by 2030.

The PLA Navy has had an unprecedented naval expansion from 2000 through 2018 "that far exceeds the build-up in any other navy in the post-World War II era". It had 216 ships in 2005 that increased to 333 in 2020, and projected to be 425 by 2030, while the US had 296 platforms during the same period.[57] The navy's new inventory has increased under Xi. For instance, between 2014 and 2018, China launched more submarines, warships, amphibious vessels, and auxiliaries than the number of ships currently serving in the individual navies of Germany, India, Spain, and the United Kingdom.[58] China commissioned 18 ships into its armoury in 2016 alone and another 14 were inducted in 2017. On the other hand, the US Navy commissioned only 5 and 8 ships respectively during the same period. According to the US Office of Naval Intelligence (ONI), China is on the cusp of marginalising the US' predominant naval position in the Indo-Pacific region.[59] According to the 2021 Congressional Service Report, the Chinese Navy surpassed the US Navy in terms of the total number of battle force ships some time between 2015 and 2020.[60] The US Navy has many more aircraft carriers, nuclear-powered submarines, and cruisers and destroyers, while the Chinese Navy currently has many more diesel attack submarines, frigates, and corvettes. With this force level, it is expected that China would be able to project its power within the third island chain by 2030, and would have the force required to meet Xi's goal of rejuvenation of the Chinese nation.

57. "China Naval Modernization: Implications for US Navy Capabilities—Background and Issues for Congress", CRS Report, Washington, DC: Congressional Research Service, March 9, 2021, https://fas.org/sgp/crs/row/RL33153.pdf. Accessed on January 20, 2022.
58. "How is China Modernizing its Navy?", *CSIS China Power*. https://chinapower.csis.org/china-naval-modernization/ Accessed on January 25, 2022.
59. Office of Naval Intelligence (US), "The PLA Navy : New Capabilities and Missions for the 21st Century", 2015. https://www.oni.navy.mil/News/China-Publication/. Accessed on January 22, 2022.
60. n. 57.

US' RESPONSE STRATEGIES TO COUNTER CHINA'S A2/AD

The US Navy has many more aircraft carriers, nuclear-powered submarines, and cruisers and destroyers, while the Chinese Navy currently has many more diesel attack submarines, frigates, and corvettes. With this force level, it is expected that China would be able to project its power within the third island chain by 2030.

As China's military modernisation became steady and achieved capabilities for challenging the US Navy in the Western Pacific, for the first time since World War II, a regional power rose to achieve local superiority by pushing the US out of the theatre. The US was forced to develop counter-measures to maintain its predominance in East Asia. Under these circumstances, former US President Barack Obama framed America's foreign policy shift towards the Indo-Pacific region in the 21st century, declaring that US economic and security interests are "inextricably linked to the developments in the arc extending from the Western Pacific and East Asia into the Indian Ocean and South Asia".[61] Prior to the announcement, there had been a series of policy formulations and strategic plans under the US Department of Defence, and in July 2009, the secretary of defence directed the Departments of the Navy and Air Force to address the Chinese challenges and formulate strategic plans accordingly, which resulted in the "Asia pivot"[62] by the formulation of the navy and the Air-Sea Battle (ASB) concept by the air force.[63] The 'pivot' later come to be known as 'rebalance' which contained an economic component of the Trans-Pacific Partnership (TPP); however, the pivot continued as a military strategy. With the air force as the principal agency, the ASB concept was more of a joint concept by the US Army, Marine Corps,

61. US Department of Defence, "Sustaining US Global Leadership: Priorities for 21st Century Defense", Washington, D.C., January 2012, p. 2. https://www.globalsecurity.org/military/library/policy/dod/defense_guidance-201201.pdf . Accessed on January 22, 2022.
62. n. 24.
63. US Department of Defence, "Air Sea Battle: Service Collaboration to Address Anti-Access Area Denial Challenges," May 2013, p. 1. https://archive.defense.gov/pubs/ASB-ConceptImplementation-Summary-May-2013.pdf. Accessed on January 22, 2022.

The objective of both the pivot and ASB was to maintain US superiority in the air and the seas in the region that the US had held for over half a century. Under the pivot, the US' focus was a realignment of existing naval capabilities between the Atlantic and the Pacific, while the ASB aimed to develop new systems for domain dominance.

and Navy, and it required collaboration and active participation from all the Services. Under the 'pivot' strategy, the US had planned to shift its naval assets with a 60 vs 40 ratio between the Pacific and the Atlantic, particularly the deployment of 6 out 10 aircraft carriers into the Pacific, while the ASB focussed on "joint operating effectiveness of US naval and air force units, particularly in operations for countering anti-access strategies".[64]

The objective of both the pivot and ASB was to maintain US superiority in the air and the seas in the region that the US had held for over half a century. Under the pivot, the US' focus was a realignment of existing naval capabilities between the Atlantic and the Pacific, while the ASB aimed to develop new systems for domain dominance: maritime, air, and cyber. In January 2012, the US president introduced new strategic guidance entitled *Sustaining US Global Leadership: Priorities for 21st Century Defense* that specifically tasked the US military to project power despite China's A2/AD.[65] It stated that "US economic and security interests are inextricably linked to developments in the Indo-Pacific region."[66] However, the 2008 financial crisis and the financial burden rendered by the prolonged war on terror had forced the Obama Administration to cut defence expenditure, so the US was not able to fully implement both the pivot and ASB. Indeed, the ASB concept never took off: it remained only as a concept on the drawing board; and posturing

64. Congressional Research Service, "Pivot to the Pacific? The Obama Administration's 'Rebalancing' Toward Asia", March 28, 2012. https://sgp.fas.org/crs/natsec/R42448.pdf. Accessed on January 22, 2022.
65. The White House, *Sustaining US Global Leadership: Priorities for 21st Century Defense,* January 3, 2012. https://archive.defense.gov/news/defense_strategic_guidance.pdf. Accessed on January 22, 2022.
66. Ibid., p. 2.

and discussions drove the pivot to inconclusiveness. Thus, the financial burden as well as time overruns in developing capabilities to maintain the US' preeminence, led to both the 'pivot' and ASB becoming defunct. However, they were the US' major strategic initiatives prior to the PDI aimed to counter China's challenge in the Western Pacific.

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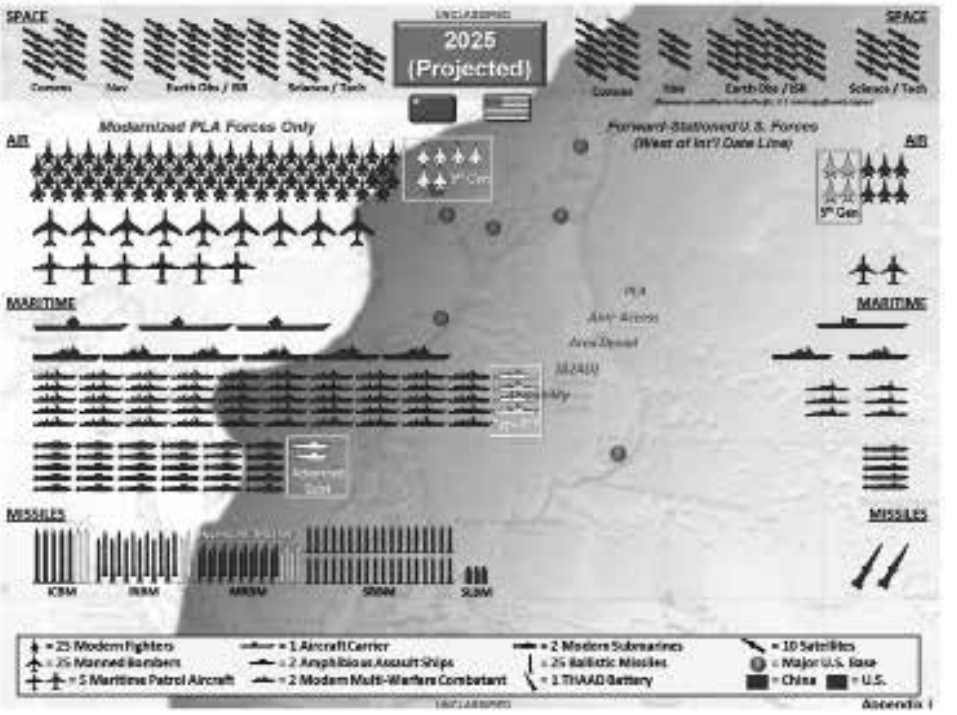
A major worry for the US defence planners has been that the current systems, both offensive capabilities and deterrent mechanisms, placed in East Asia and the Western Pacific, are ineffective against the Chinese threat. China has established a formidable offensive-defensive mechanism within the first island chain, and according to an analysis by the US Defence Department, in 2019, China had 750 to 1,500 short-range ballistic missiles that could hit Taiwan, up from 50 in 1995.[67] The Chinese military is also estimated to have more than 950 medium-range ballistic missiles (Fig 2). However, the existing US Terminal High Altitude Air Defence (THAAD) missiles defence system stationed at Guam comprises a lower-tier missile defence asset, more geared toward defending against very low-volume attacks, such as a limited ballistic missile strike from North Korea, rather than a major ballistic missile barrage from China.[68] China's land based SAMs and IRBMs (DF-21D and DF26D) pose a very serious threat to the US.[69] Similarly, China is closing the gap on the US on the decades of technological advantage and domain dominance that the US had enjoyed, particularly in the air, sea, space, and cyber realms, and, in some cases, China has surpassed the US. On the one hand, new technology is

67. Junnosuke Kobara and Yukio Tajima, "Military Might and Flashpoints Shift from West to East Asia. Now account for Half of US Overseas Troop Deployments," *Nikkei Asia*, May 25, 2021. https://asia.nikkei.com/Spotlight/Datawatch/Military-might-and-flashpoints-shift-from-West-to-East. Accessed on January 22, 2022.
68. Joseph Trevithick, "This is the Pentagon's $27 Billion Master Plan To Deter China in the Pacific", *The Drive*, March 5, 2021. https://www.thedrive.com/the-war-zone/39610/this-is-the-pentagons-27-billion-master-plan-to-deter-china-in-the-pacific. Accessed on January 22, 2022.
69. Erickson, n. 52.

expensive, and the United States has seen increasingly limited returns on its investments in military technology, on the other. Its advanced systems like the F-22 and F-35 were plagued by cost overruns and fielding delays that raised the price per unit so high that the Services were forced to purchase fewer units than they wanted. So the US' focus is to build a deterrent mechanism to safeguard its men and hardware deployed in the Western Pacific theatre, and also its homeland without much capital outlays. The US Congress and government, thus, believe that the PDI could plug the gap.

Fig. 2: INDOPACOM Estimate of 2025 Chinese Forces in the Western Pacific Image



Source: "US Indo-Pacific Command Wants $4.68B for New Pacific Deterrence Initiative", *USNI News*, March 2, 2021. https://news.usni.org/2021/03/02/u-s-indo-pacific-command-wants-4-68b-for-new-pacific-deterrence-initiative. Accessed on January 22, 2022.

THE US AND THE PDI SYSTEMS

To enhance its deterrent capability in the Western Pacific, in the next few years, US investments will focus on developing theatre cruise, ballistic, and hypersonic missiles; advanced long-range precision strike systems; and C4ISR systems.[70] Earlier the US was restrained from developing theatre missiles because of its commitment to the Intermediate Nuclear Forces (INF) Treaty, however, with the withdrawal from the INF Treaty in August 2019, the US is now free to develop short-range/intermediate range missiles as counter-measures to China's A2/AD.

The US was restrained from developing theatre missiles because of its commitment to the Intermediate Nuclear Forces (INF) Treaty, however, with the withdrawal from the INF Treaty in August 2019, the US is now free to develop short-range/intermediate range missiles as counter-measures to China's A2/AD.

The approved systems to be developed/established for the PDI under the NDAA FY 2022 are: $218.3 million for the 360-degree persistent and land-based integrated air and missile defence system on Guam; $75 million for the radar system stationing in Hawaii; $1.9 billion for developing the ground-based midcourse defence/next generation interceptor; $108 million for establishing Israel's Iron Dome missile defence system on Guam; $1.7 billion for the Aegis Ashore BMD system on Guam; and $694 million for the Guam-based THAAD.[71] The US Indo-Pacific Command and the Missile Defence Agency are the lead agencies responsible for the establishment of missile defence systems. Guam receives centrality in the PDI as it is critical to America's goal of establishing a "credible force posture capable of deterring and, if required, defeating, threats posed by regional competitors."

In its proposal to the Congress in May 2021 for the PDI allocation through the NDAA FY 2022, the Department of Defence suggested the need for the "development of advanced, asymmetric capabilities and capacity designed

70. Singleton, n. 4.
71. Centre for Arms Control and Non-Proliferation,"Final Summary: Fiscal Year 2022 National Defense Authorization Act (S. 1605)" December 30, 2021. https://armscontrolcenter.org/wp-content/uploads/2021/12/FY22-NDAA-website-PDF1.pdf . Accessed on January 22, 2022.

The cornerstone of the PDI is joint force lethality, enhancing combat effectiveness and resilience of air, land, and sea forces throughout the Indo-Pacific, which will bolster the US' deterrence as well as support the defence of the US' Pacific allies and partners.

to operate in an anti-access/area denial environment as centrally important to Pacific deterrence".[72] Key among these investments are those for "improved long-range munitions development and procurement, advanced strike platforms, expanded forward force posture and resilience, targeted security cooperation programs to enhance the capabilities of our allies and partners, innovative exercises and experimentation, and technologically superior Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems".[73]

The cornerstone of the PDI is joint force lethality, enhancing combat effectiveness and resilience of air, land, and sea forces throughout the Indo-Pacific, which will bolster the US' deterrence as well as support the defence of the US' Pacific allies and partners. The NDAA FY 2022 has allocated $4.91billion for the joint force lethality mechanism, which will be utilised by the US Navy, Air Force, and Missile Defence Agency.[74] Naval investments go across multiple programmes such as shipbuilding activities and shipbuilding capacity, unmanned surface and sub-surface vessels, and platform types crucial to the future development of US naval power projection. The naval investments include $2.1 billion for new DDG 51 destroyers, capable of operating offensively and defensively, independently or as units of carrier strike groups and surface action groups. PDI investments will also go to some of the existing programmes such as the DDG 1000 ($75.4 million), guided missile frigate ($85.0 million), Virginia class SSN(X) ($29.8 million), T-AO fleet oiler ($744.2 million), and Landing Helicopter Assault (LHA) ships

72. Office of the Under Secretary of Defence (Comptroller), "Pacific Deterrence Initiative: Department of Defense Budget Fiscal Year (FY) 2022", May 21, 2021. https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2022/fy2022_Pacific_Deterrence_Initiative.pdf . Accessed on January 22, 2022.
73. Ibid.
74. Ibid.

replacement ($68.6 million).[75] To enhance the navy's offensive capability and air superiority, NDAA FY 2022 allocates: $399.5 million for the F-35 Joint Strike Fighter (JSF) programme to develop and field an affordable, highly common family of next generation strike aircraft for the US Navy, Marine Corps, Air Force, and international partner countries; $75.0 million for the conventional prompt strike weapon system, which will deliver a hypersonic conventional offensive strike capability through a depressed boost-glide trajectory; $118.0 million for the standard missile for an extended range engagement capability to provide air superiority and the umbrella of protection for joint US forces and allies; and $121.4 million funding for the Tactical Tomahawk (TACTOM) that provides an attack capability against fixed and mobile targets, and is launched from both surface ships and submarines.[76]

The PDI funding for the air force includes F-35 Block 4 Development ($438.5 million), F-35A Block 4 Retrofit ($181.1 million), Hypersonics ($200.1 million), Military Global Positioning System User Equipment ($25.2 million), and ($109.4 million for the Embedded Global Positioning System (GPS)/ Inertial Navigation System (INS) (Table 2).[77] Besides, the US Air Force is developing multiple types of hypersonic weapons to be launched from planes, which requires a different engineering approach and will result in different ranges.[78]

Another feature of the PDI is that the US Army has been called into the Pacific theatre, and its major role would be to provide logistical support to other forces, including the protection of US bases and important locations, and to field and operate ground-based long range attacking systems. According to US government sources, the army would serve as the 'lynchpin Service' for the joint force in the Indo-Pacific, with supporting missions including; building and defending bases in the Pacific, providing

75. Ibid.
76. Ibid.
77. Ibid.
78. Sydney J. Freedberg Jr, "Army Discloses Hypersonic LRHW Range of 1,725 Miles; Watch Out China", *Breaking Defense*, May 12, 2021. https://breakingdefense.com/2021/05/army-discloses-hypersonic-lrhw-range-of-1725-miles-watch-out-china/. Accessed on January 22, 2022.

Table 2: PDI Funding Details, US Air Force

Organisation Title	Account Title	Budget Activity Title	Line Item Title	Programme Element	FY 2022 ($ in thousands)
Department of the Air Force	Aircraft procurement	Modification of inservice aircraft	**35 Modifications**	0207142F	181,135
	Research, development, test & evaluation	Advanced component development & prototypes	**Hypersonics Prototyping**	0604033F	200,116
		Operational systems development	**F-35 C2D2**	0604840F	438,500
		System development and demonstration	**PNT Resilience, modifications, and improvements**	0604201F	134,622
Grand Total					954,373

Source: Office of the Under Secretary of Defence (Comptroller), "Pacific Deterrence Initiative: Department of Defense Budget Fiscal Year (FY) 2022", May 21, 2021, p. 10. https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2022/fy2022_Pacific_Deterrence_Initiative.pdf. Accessed on January 22, 2022.

command and control for the broader military, and sustaining logistical supply lines across vast distances.[79] The army will also operate long-range guns and ground-based missiles suited to the region's requirements.[80] The

79. Andrew Eversden, "Wormuth: Here's the Army's Role in a Pacific Fight", *Breaking Defense*, December 1, 2021. https://breakingdefense.com/2021/12/heres-what-the-army-would-do-in-a-pacific-fight-wormuth/. Accessed on January 22, 2022.
80. Mark Magnier, "US Army Focuses on Indo-Pacific Logistics, Bases to Deter China, says its Top Official", *South China Morning Post*, December 2, 2021. https://www.scmp.com/news/china/article/3158098/us-army-focuses-indo-pacific-logistics-bases-deter-china-says-its-top. Accessed on January 22, 2022.

army has already built a hypersonic weapon glide body in collaboration with the private industry, it has also separately produced launchers, trucks, trailers, and the battle operation centre needed to put together a ground-launched hypersonic weapon battery.[81] It tested the hypersonic glide body on March 19, 2020, from the Pacific Missile Range Facility in Kauai, Hawaii.[82] This can be launched from a mobile truck and reaches 1,725-plus miles, enough to hit Taiwan from Guam which is a 1,718 mile distance, should China take over Taiwan.[83]

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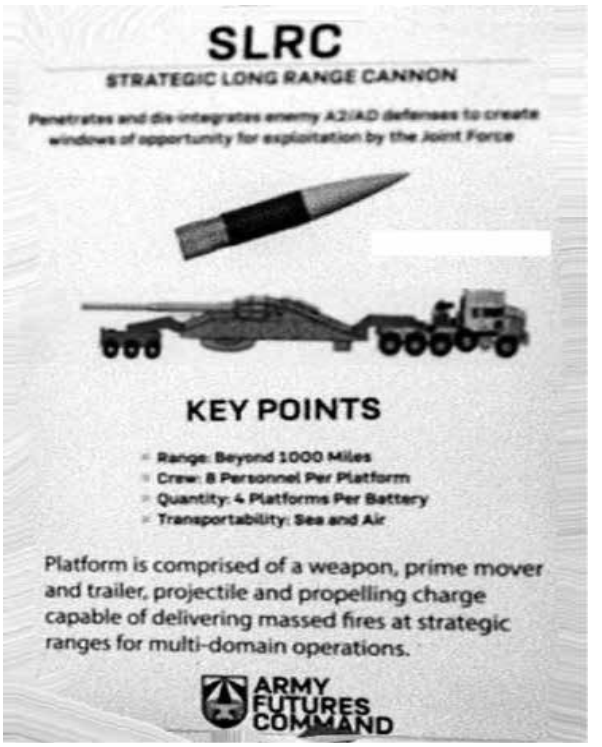
The US Army had been mulling over the development of a new long range gun, the Strategic Long Range Cannon (SLRC), with a range of 1,000 miles, transported by truck, handled by a crew of eight, which can penetrate China's A2/AD systems (Figs 3 & 4).[84] The maximum range of the army's existing 280-millimetre (mm) M65 "Atomic Annie" gun is 20 miles, designed to sling nuclear warheads downrange (Fig 6). The cannon is not a successor to the Paris gun or Gerald Bull's big gun, rather, the "SLRC fires a self-propelled projectile, providing the initial boost needed to get the projectile up to multi-mach speeds where the on-board propulsion system can initiate self-sustained flight and hit the target."[85] With the SLRC, "the army could pound China's artificial islands—and the missile sites and airfields on them—to

81. Jen Judson "US Army Begins Equipping First Unit With Hypersonic Capability", *Defense News*, February 9, 2021. https://www.defensenews.com/land/2021/02/09/us-army-begins-equipping-first-unit-with-hypersonic-capability/. Accessed on January 22, 2022.
82. Ibid.
83. Freedberg Jr, n. 78.
84. David Axe, "The Army's New 1000-Mile Cannon Will Match the Navy And Air Force's Ranged Strike Capabilities", *The National Interest*, February 6, 2021. https://nationalinterest.org/blog/reboot/army%E2%80%99s-new-1000-mile-cannon-will-match-navy-and-air-forces-ranged-strike-capabilities. Accessed on January 22, 2022.
85. GlobalSecurity.org, "Strategic Long Range Cannon". https://www.globalsecurity.org/military/systems/ground/slrc.htm. Accessed on January 25, 2022.

pieces, from the Philippines, and from Japan, SLRC could hit Beijing itself."[86] The SLRC project is now on pause due to financial constraints, however, as the dispute becomes "kinetic" from the current diplomatic level, the US government might allow the army to proceed with it.[87]

Fig. 3: Graphic Showing a Notional SLRC Design



Source: GlobalSecurity.org, "Strategic Long Range Cannon". https://www.globalsecurity.org/military/systems/ground/slrc.htm. Accessed on January 25, 2022.

86. Kyle Mizokami, ""Leaked Images Show the Army's Mind-Bending New Super Gun", *Popular Mechanics*, February 25, 2020. https://www.popularmechanics.com/military/weapons/a31083160/leaked-images-army-super-gun-strategic-long-range-cannon/. Accessed on January 23, 2022.
87. Jen Judson, "Strategic Long-Range Cannon Effort on Hold Ahead of the Report", *Defense News*, March 10, 2021. https://www.defensenews.com/land/2021/03/09/strategic-long-range-cannon-effort-in-holding-pattern-ahead-of-tech-feasibility-report/. Accessed on January 20, 2022.

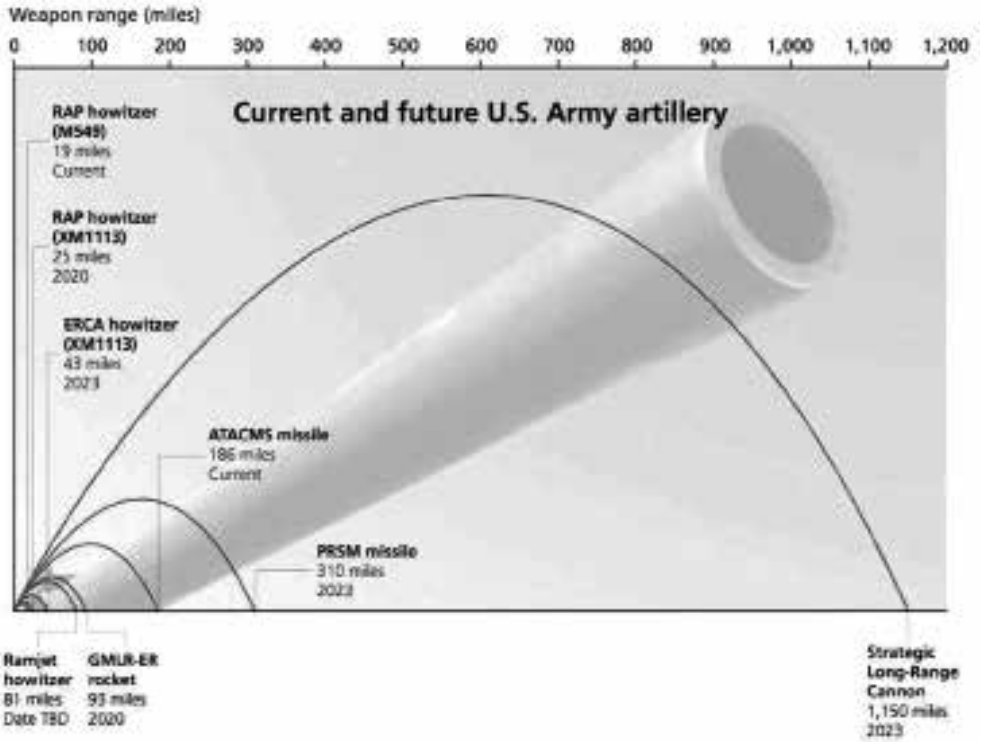
Fig. 4: US Army's Combat Capabilities Development Command posted an Artist's Impression of the SLRC on Linkedin in February 2020

Source: David Axe, "The Army's New 1000-Mile Cannon Will Match The Navy And Air Force's Ranged Strike Capabilities", *The National Interest*, February 6, 2021. https://nationalinterest.org/blog/reboot/army%E2%80%99s-new-1000-mile-cannon-will-match-navy-and-air-forces-ranged-strike-capabilities. Accessed on January 25, 2022.

CONCLUSION

The China-US competition actually takes place in the Western Pacific theatre for strategic dominance. China, the regional heavyweight, started developing new weapon systems way back in the 2000s, to gain local superiority over the US' traditional capabilities. The aircraft carrier, the mainstay of the US' power projection, was considered as the major potent weapon system in China's security calculations, so China developed two variants of the anti-ship ballistic missile, the DF-21D, having an operational range of around 2,000 km, and the DF 26D, with a range of 4,000 km, against

Fig. 5: Varied Ranges of US Army's Existing and Future Artillery



Source: GlobalSecurity.org, "Strategic Long Range Cannon". https://www.globalsecurity.org/military/systems/ground/slrc.htm. Accessed on January 25, 2022.

moving targets as well as US installations in Guam. With these missiles, and also other systems as part of China's A2/AD capability, US carrier strike groups as well as other ground-based systems stationed in East Asia are vulnerable to Chinese aerial attacks. Besides, China, in 2019, paraded a ballistic missile featured hypersonic glide vehicle, the DF 17D—the first country ever to produce such an advanced system, showing the potential danger to the US deterrent mechanism against the Chinese threat. The US' existing air defence system is of Cold War origin, which will find it

difficult to discover, track or shoot down hypersonic weapons.[88] In fact, the US was once the leader in hypersonic technology, but found hypersonic flight technology unnecessary after the collapse of the Soviet Union. In this regard, the US requires new strategies and systems to counter China.

Disrupt, destroy and defeat the threat locally, thus, preventing it from reaching the US homeland has been the cornerstone of the US' deterrence strategy.

Disrupt, destroy and defeat the threat locally, thus, preventing it from reaching the US homeland has been the cornerstone of the US' deterrence strategy. The US also had the responsibility to protect its allies in East Asia as its preponderance has been the actual security guarantee of these allies. However, ever since the US came to know about China's advancements in missile technology to prevent its manoeuvrability in the Western Pacific, the US has made concerted efforts to deter the Chinese threat and maintain its superiority in the region. The PDI is the second initiative after the 'rebalancing'; the PDI is a military strategy involving the jointness of all major Services, while 'rebalancing' had a compartmentalised operational strategy by the navy and air force as well as the economic component of the TPP. The central tenet of the PDI is a long range attack on Chinese installations from outside the second island chain to defeat the threat before it can cross the second island chain. Importantly, Chinese President Xi Jinping, at various forums, has emphasised the importance of China being a strong military power, and to fulfill his "China Dream of national rejuvenation", China should be able to push back the US from the East Asian theatre. On the other hand, leaving the theatre is detrimental to the US' global status as well as the security of its regional allies. With the PDI, the US aims to deter China from becoming the most powerful military power in the Indo-Pacific region by the middle of the 21st century.

88. Stephen Chen, "What are Hypersonic Weapons, and Why is There a Race Between China, the US and Others to Develop Them?', *South China Morning Post*, January 24, 2022. https://www.scmp.com/news/china/science/article/3164444/what-are-hypersonic-weapons-and-why-there-race-between-china-us . Accessed on January 24, 2022.

America employs a comprehensive strategy to maintain the balance of power in its favour in the Indo-Pacific region. The PDI is its military component, the others being the regional mechanism and economic commitments. The Quadrilateral Security Dialogue (Quad) comprising the US, India, Japan, and Australia is the major regional mechanism to counter China's attempt to create a Western Hemisphere model in East Asia. Even though the Quad has the potential to become an Asian North Atlantic Treaty Organisation (NATO) against China, regional countries are wary of antagonising Beijing, so the Quad is now focussing on the "COVID-19 pandemic, the climate crisis, and critical and emerging technologies".[89] However, India has strengthened its bilateral defence cooperation with the US and other Quad members to prevent China getting a hegemonic position in the Indo-Pacific region. Similarly, the US has committed to provide financial assistance to the Southeast Asian countries to recover from the COVID-19 pandemic related crisis as well as to arrest the economic difficulties emerging out of the "US-China tech decoupling".[90] The Southeast Asian economies are hugely dependent on China so they need economic assistance from the US to divert their market sources out of China. In a way, with the PDI and other mechanisms, the US is aiming at containing China in a comprehensive manner.

89. The White House, "Joint Statement from Quad Leaders", September 24, 2021. https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/24/joint-statement-from-quad-leaders/. Accessed on January 7, 2022.
90. Manoj Harjani, "Is Southeast Asia Ready for a US-China Tech Decoupling?" *The Interpreter*, Lowy Institute, May 31, 2021. https://www.lowyinstitute.org/the-interpreter/southeast-asia-ready-us-china-tech-decoupling. Accessed on February 2, 2022.