Annual Report to Congress

MILITARY AND SECURITY DEVELOPMENTS INVOLVING THE PEOPLE'S REPUBLIC OF CHINA 2013

A REPORT TO CONGRESS PURSUANT TO THE NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2000
Although Taiwan dominates the PLA’s force modernization, China is mainly investing in military programs and weapons to improve extended-range power projection and operations in emerging domains such as cyber, space, and electronic warfare.

Trends in weapon production include ballistic missiles, anti-ship and land attack cruise missiles, nuclear submarines, modern surface ships, and an aircraft carrier.
China classifies the first two decades of the 21st century as a “strategic window of opportunity” and conducive to expanding China’s “comprehensive national power,” which includes economic capacity, military might, and diplomacy.

China regards stable relations with its neighbors and the U.S. as essential to its stability and development.

Despite its desire to project an image of a developing country engaged in a peaceful development strategy, China’s efforts to defend national sovereignty and territorial integrity have occasionally manifested in assertive rhetoric and behavior that has generated regional concerns about its intentions.
PLA Future Capabilities

- **Nuclear Weapons**
  - China will likely continue to invest considerable resources to ensure it can deliver a damaging, retaliatory strike.

- **Future Efforts**
  - A range of technologies to counter U.S. and other countries’ ballistic missile defense systems

- **Anti-Access / Area Denial**
  - China continues to develop measures to deter or counter third-party intervention, particularly by the U.S.
  - A2/AD is focusing on the capability to attack, at long ranges, military forces that might deploy or operate within the western Pacific
  - Developing air, sea, undersea, space and counter-space, and information warfare systems and operating concepts for multi-layered offensive capabilities
  - Seek “information blockade” or “information dominance” in early phases of a campaign
  - Fielding conventionally armed ballistic missiles, ground- and air-launched land-attack cruise missiles, special operations forces, and cyber-warfare capabilities to hold targets at risk throughout the region.
Overview

- China continues to decrease its reliance on foreign weapons acquisitions as its domestic defense-industrial and research bases mature, but looks to foreign assistance to fill critical near-term capability gaps.

- Long-term goal is to create a wholly-indigenous defense industrial sector, augmented by a strong commercial sector, to meet the needs of military modernization.

- On March 5, 2013, China announces a 10.7% increase in its annual military budget to $114 billion, continuing more than two decades of sustain defense spending increases.

- From 2003-12 China’s publicly-disclosed military budget has grown at an average of 9.7% per year, a growth rate that is considered sustainable, even with lowered overall economic growth forecasts.

- The U.S. estimates that China’s total actual military-related expenditures for 2012 falls between $135 and $215 billion.
Science and Technology Development Goals Through 2020

- **Basic research**
  - Material Design and Preparation
  - Manufacturing in Extreme Environmental Conditions
  - Aeronautic and Astronautic Mechanics
  - Information Technology Developments
  - Nontechnology Research

- **Leading-edge technologies**
  - Information Technology - perception technologies, ad hoc networks, and virtual reality technologies.
  - New Materials - smart materials and structures, high-temperature superconducting technologies, and highly efficient energy materials technologies;
  - Advanced manufacturing - extreme manufacturing technologies and intelligent service advanced machine tools;
  - Advanced energy technology, marine technologies - include hydrogen energy and fuel cell technologies, alternative fuels, and advanced vehicle technologies;
  - Marine Technologies - three-dimensional maritime environmental monitoring technologies, fast, multi-parameter ocean floor survey technologies, and deep-sea operations technologies;
  - Laser and aerospace technology - include development of chemical and solid laser state technologies to ultimately field a weapons-grade system from ground-based and airborne platforms.
Developments and Trends in China’s Defense Industry (con’t)

- **Key Fields and Priority Subjects**
  - China has identified certain industries and technology groups with potential to provide technological breakthroughs, examples include radar, counter-space capabilities, secure C4ISR, smart materials, and low-observable technologies.

- **Major Special Items**
  - China has identified 16 “major special items” for which it plans to develop or expand indigenous capabilities. These include: core electronic components, high-end universal chips and operating system software, very large-scale integrated circuit manufacturing, next-generation broadband wireless mobile communications, high-grade numerically controlled machine tools, large aircraft, high-resolution satellites, and lunar exploration.

- **Foreign Arms Acquisition**
  - Particularly from Russia and the Ukraine

- **Espionage Supporting Military Modernization**
  - Include economic espionage, theft of trade secrets, export control violations, and technology transfer.
Chinese Missile Ranges
Anti-Access/Area Denial (A2AD) Threats
THE DEFENSE SCIENCE BOARD REPORT ON

Technology and Innovation Enablers for Superiority in 2030
RECOMMENDATION 1
(CATEGORIES FOR TECHNOLOGY INVESTMENT PORTFOLIO)

1. USD (AT&L) use four new categories as a taxonomy for broader use in thinking about the DoD’s technology investment portfolio:

- Coping With Parity
- Achieving Superiority Through Cost Imposing Strategies
- Achieving Superiority Through Enhancing Force Effectiveness
- Anticipating Surprise
<table>
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<th>People</th>
<th>IWC</th>
<th>Affordability</th>
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<td>S&amp;T Portfolio Connection</td>
<td>O&amp;S Cost Reduction</td>
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<td>Continuous Learning Culture</td>
<td>Logistics Support Strategy</td>
<td>Apply New Technology to Maintenance</td>
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<td>Strengthen Integration/Collaboration</td>
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<td>Strengthen Professional Networks</td>
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<td>Digital Collaboration Tools</td>
<td>Lead Systems Integration</td>
<td>Industrial Base - Best Value</td>
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<td>Standardize Processes. Methods, Tools</td>
<td>Open Architecture</td>
<td>Manufacturing Quality Standards</td>
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<td>Automate Processes</td>
<td>Technical Standards</td>
<td>Market Research</td>
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<td>Promote Diversity</td>
<td>Product Support Manager Role</td>
<td>Supply Chain Mgmt</td>
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<td>Promote Innovation</td>
<td>Rapid Response - Low Cost/Innovative Solutions</td>
<td>Reduce Org Layers &amp; Create Horizontal Networks</td>
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<td>Recognize Innovators</td>
<td>In-House Prototyping</td>
<td>Optimize Infrastructure &amp; Tools</td>
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<td>Fleet Experiments</td>
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<td>Expeditionary Logistics</td>
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<td>Decision Support Tools</td>
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<td>Workforce Planning Framework</td>
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ALIGNING TO COMMAND GUIDANCE & INTENT: FY13 NAWCAD STRATEGIC CELL HIGHLIGHTS

PEOPLE

INVEST IN OUR PEOPLE

INTEGRATED WARFIGHTING
CAPABILITY

DELIVER INTEGRATED & INTEROPERABLE
WARFIGHTING CAPABILITIES

AFFORDABILITY

IMPROVE AFFORDABILITY
ACROSS THE FULL LIFE CYCLE

SPEED

Establish Comprehensive Workforce Strategy

Establish a Highly Dynamic Learning Organization

Out-Pace the Threat

Deliver Advanced IWC

Reduce Acquisition Cycle Time

Reduce Total Ownership Cost

Examples of Completed or Incorporated

- HQ LRWS
- LO POA&M
- COI POA&M
- Future Rqmts
- Env Scans
- GTRI (X14)
- Strat Ratable
- 3-D VW NLDP
- OpenSim
- Talent Mgmt
- MOOC Deploy
- Future Skills ID
- Leaders Library
- Mental Model R&D
- 360 Leader Devmt

Examples of Currently Working

- TSD LO Study
- LO Knowledge Wkshopa
- NLDP LOFT Pilot/ WAS
- NLDP Facilitation
- MySites Pilot
- AIR MOOC Policy Draft
- TPP Strategic BBs (X2)
- DARPA HELLADS
- DoN DEW Strategy
- DEW S/V Test
- OA Demos (3X)
- NWC Wargame
- PS APL Nano Study
- 3-D AM MMOWGLI
- A2AD Assessment
- 3-D AM Rdmapping
- FA-XX DSS
- Strategic DSS
- Innovator Networks
- Security Infrastructure
- Nanotechnology
- DEW/HELLADS
- OSD FATWG
- Autonomy Thrust
- ICAP/ITEST
- FA-XX Planning
- Experimentation
- MIT LL/LLNL
- A2AD Brief Dvmt
- Innovation R&D
- Innovation Courses
- IWC RR CONOP
- Experimentation Planning
- Autonomy Sense & Avoid
- NWC Wargame
- NWC A2AD Study
- NWDC Innovation Cell
- CNO SSG
- RR/IW Wargames
- RR/IW SharePoint
- RR/IWC Org/CONOPS
- Skunkworks Concept
- PLM Benchmarking
- HQ Data Governance Charter
- RR/IW Wargames
- RR/IW SharePoint
- RR/IWC Org/CONOPS
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Updated 10/2013
Future State Visioning

As-Is

- Less risk adverse
- Cultural change
- Partnering with professional organizations outside the gate
- Silicon valley for robotics
- Ability to draw talent
- Attractive social environment
- Incentives for innovative thinking
- Draw for venture capital
- Broadened market leveraging existing technical capabilities
- Focus on best value vice trip wires

To-Be