THE REPUBLIC OF TURKEY
BAHÇEŞEHİR UNIVERSITY

AN ANALYSIS OF PEOPLE'S LIBERATION ARMY – IS PLA'S DEVELOPMENT A THREAT OR NOT FOR GLOBAL WORLD ?

Master Thesis

MURAT GÜNAY

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BAHÇEŞEHİR ÜNİVERSİTESİ

INSTITUTE OF SOCIAL SCIENCES

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Supervisor: PROF. DR. ESER KARAKAŞ

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ABSTRACT

An Analysis of People's Liberation Army – Is PLA'S Development a Threat or Not For Global World ?

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After the Cold War the world policy has entered a new era which is one pole with the collapse of the USSR. In the early 2000's, new alternative polarizations in the one polar world shaped under the hegemony of the USA. These candidates of alternative superpowers are the European Union , Russia and People's Republic of China.

PRC is different from these other potential superpower canditates with its huge population, sustainable growing economy and its political regime. In addition to this, the increasing of defense spendings and the development at the PLA are seen as a threat and are advocated the thesis of limit its defense spendings by US government. On the other hand, PRC has declared that these defense spendings are peaceful.

Despite these two opinion, PRC's alliances with the members of Shagai Cooperation Organisation and the political structure of SCO's members show that another pole is slowly taking shape. This polarization reminds the question of the possibility of the conflict between these two polars in the future or the question of occuring a structural type in the world politics like the years of Cold War. Especially, the aggressive speechs of the leaders like Venezuella or Iran bring the possibility of the conflict between these two poles.

In this thesis, the PRC's armament process is researched and the People's Liberation Army is analysed with its all forces. It is also searched the answer of the question of " Is PRC's armament process a threat for global world?" according to United States of America's claims or "Are PRC's defensive spendings a peaceful armament process" according to People's Republic of China's defences.

In the first part of the thesis, there is a general information about why this thesis has written. In the second part, PLA's forces, the equipments which are used by PLA, the technology level of the PLA, the developments in the defense industry and defensive spendings are included. It is also explained the reflections of these spendings to the defense industry and the strategies of research and development, in this part. PRC's nuclear power is researched as a deterrent nuclear power. In the third part, the process of occuring these poles for different scenerios and forming peace or threat of this armament process are explained based on the explanations which are told in the part one and two.

Keywords: People's Liberation Army, Chinese Military Spendings, Arms Race, Chinese Defense Industry, Chinese Defense Policy

ÖZET

ÇİN HALK CUMHURİYETİ HALKIN ÖZGÜRLÜK ORDUSU'NUN ANALİZİ – HALKIN ÖZGÜRLÜK ORDUSU'NUN GELİŞİMİ KÜRESEL DÜNYA AÇISINDAN TEHDİT OLUŞTURUYOR MU?

Günay, Murat

Avrupa ve Uluslar arası Çalışmalar Yüksek Lisans Programı
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Sovyetler Birliği'nin dağılmasıyla sonuçlanan Soğuk Savaş'ın ardından Amerika Birleşik Devletleri'nin hegamonyası altında tek kutuplu bir yapıya dönüşen dünyada 2000'li yıllarda alternatif güç odakları belirmeye başladı. Bunlar arasında Avrupa Birliği, Rusya Federasyonu ve Çin Halk Cumhuriyeti'ni sayabiliriz.

Çin Halk Cumhuriyeti, çok hızlı büyüyen ekonomisi, kalabalık nüfusu ve yönetim biçimiyle diğer potansiyel süper güç adaylarından ayrılmaktadır. Bununla birlikte artan savunma harcamaları ve askeri alanda güçlenmesi ABD yönetimi tarafından tehdit olarak görülmekte ve savunma harcamalarının kısıtlanması gerektiği ABD tarafından savunulmaktadır. Çin Halk Cumhuriyeti ise bu düşünceye savunma harcamalarının barışcıl olduğu konusunda karşı demeçler vermektedir.

Bu iki görüşe rağmen; Çin Halk Cumhuriyeti'nin, Şangay İşbirliği Örgütü üyeleriyle müttefiklik ilişkileri ve bu müttefiklerinin politik yapısı gösteriyor ki bir diğer kutup yavaş yavaş oluşmaktadır. Bu kutuplaşma ise beraberinde bu iki kutuplar arasında ileride bir çatışma ya da Soğuk Savaş yıllarına benzer bir yapının dünya üzerinde yeniden oluşabileceği sorusunu akıllara getirmektedir. Özellikle İran lideri Ahmedinejad ve Venezuella lideri Hugo Chavez'in agrasif demeçleri bu karşılıklı kutuplaşmalarda çatışma olasılığını gündeme getirmiştir.

Bu tezde Çin Halk Cumhuriyeti'nin silahlanma süreci incelenmiş ve Çin Halk Cumhuriyeti'nin ordusu olan Halkın Özgürlük Ordusu analiz edilmiştir. Bu analiz ile birlikte Çin Halk Cumhuriyeti'nin savunma harcamalarıyla harmonize edilerek Çin Halk Cumhuriyeti'nin silahlanma sürecinin ABD'nin belirttiği gibi "Küresel dünya açısından bir tehdit unsuru oluşturuyor mu?", yoksa Çin Halk Cumhuriyeti'nin belirttiği gibi "Barışçıl bir silahlanma süreci mi?" sorularına yanıt aranmaya çalışılmıştır.

Bu tezin birinci bölümünde tezin yazılış nedeni hakkında genel bilgilendirme bulunmaktadır. İkinci bölümde Halkın Özgürlük Ordusu'nun birlikleri, birliklerinin kullandığı ekipmanlar, birliklerinin genel teknoloji düzeyi, savunma sanayisinin gelişimi ve savunma harcamaları bulunmaktadır. Bu askeri harcamalarının savunma

sanayisine yansımaları, araştırma ve geliştirme stratejileri bu bölümde anlatılmaktadır. Nükleer bir caydırıcı güç olarak Çin Halk Cumhuriyeti'nin'in nükleer gücü incelenmiştir. Üçüncü bölümde ise çeşitli senaryolara göre bu kutupların oluşumu, birinci ve ikinci bölümde anlatılanlara dayanılarak bu silahlanma sürecinin barışçıl ya da tehdit unsuru oluşturup oluşturmadığı anlatılmaktadır.

Anahtar Kelimeler: Çin Halkın Özgürlük Ordusu, Çin Savunma Harcamaları, Silahlanma Yarışı, Çin Savunma Sanayi, Çin Savunma Politikası

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ABBREVIATIONS

Anti Air Craft Artillery	:	AAA
Automatic Grenade Launcher	:	AGL
Ambhibious Light Tanks	:	ALT
Ambhibious Mechanized Infantry Division	:	AMID
Ammunition Includes Armour Piercing Fin Stabilised Discarding Sabot	:	APFSDS
Anti Tank Guided Missile Launcher	:	ATGML
Anti Tank Guided Missiles	:	ATGM
China Academy Of Launch Vehicle Technology	:	CALT
The China Aerospace Science And Industry Corporation	:	CASIC
Circular Error Probable	:	CEP
Central Military Commission	:	CMC
China National Precision Machinery	:	CPMIEC
Depleted Uranium	:	DU
Explosive Reactive Armour	:	ERA
Extended Range Full Bore	:	ERFB
Extended Range Full Bore Base Bleed	:	ERFB-BB
European Union	:	EU
Fast Attack Vehicle	:	FAV
Fractical Orbital Bombardment System	:	FOBS
Fin Stabilised High Explosive Tanks	:	FS-HEAT

High Explosive	:	HE
High Explosive Anti Tank	:	HEAT
High Explosive Fragmentation	:	HE-FRAG
High Explosive Incendiary	:	HEI
Heavy Machine Gun	:	HMG
Heavy Mechanized Infantry Companies	:	HMIC
Intercontinental Ballistic Missiles	:	ICBM
Identification Of Friend Or Foe	:	IFF
Imaged Infrared	:	IIR
Land Attack Cruise Missiles	:	LACM
Light Mechanized Infantry Companies	:	LMIC
Light Mechanized Infantry Regiments	:	LMR
Laser Self Defense Weapon	:	LSDW
Laser Warning Receiver	:	LWR
Main Battle Tank	:	MBT
Multiple Independent Re-Entry Vehicles	:	MIRV
North Atlantic Treaty Organisation	:	NATO
North Industries Corporation, China	:	NORINCO
People's Liberation Army	:	PLA
People's Liberation Army Air Forces	:	PLAAF
People's Liberation Army Navy Forces	:	PLAN
People's Liberation Army Naval Air Forces	:	PLANAF
People's Republic Of China	:	PRC
Rapid Reaction Forces	:	RRF

Surface To Air Missiles	:	SAM
Self-Propelled Anti Aircraft Artillery	:	SPAAA
Theatre Ballistic Missiles	:	TBM
Unmanned Aerial Vehicles	:	UAV
United Nations	:	UN
United States Of America	:	USA
Union Of Soviet Socialist Republics	:	USSR

1. INTRODUCTION

After the collapse of the Soviet Union the History entered a new era. The World changed its political and military organization from a bi-polar system into a one-polar system. From this moment on, there was a hegemon power in the world politics, the United States. The new hegemon had to cope with a situation where the USA was the only force that could deal with world crisis', like the threat coming from Iraq and Iran. The USA found itself the only superpower on the international scene and did not feel obliged to ask for support from any other country involved in the given international conflict. It found many ways, even juridical ones, to act without the consentment of the UN Member States. This situation was especially clear during the Iraq crises. President George Bush Jr. justified his military actions on the basis of a thesis according to which "Iraq has nuclear weapons and Saddam Huseyin will use them offensively. Iraq is a threat for the global peace". In spite of the fact that the USA didn't have any concrete proofs for its accusations concerning Saddam Huseyin and voices against the war were rising, USA started its own military action. From my point of view this situation proved that the US is nowadays a hegemon power in the World.

On the international scene there are also some potential superpowers, which have a capability to competite with USA in the future. These rising powers seem to be the European Union, Russia and China. They all may be a potential second pole in the World bi-polar system. It is certain that each one of these three actors is a great power in some domaines, but it is doubtful if they could be superpowers. The question is: "Will one of them be the second superpower in the World politics?" and "May the World change back into a structure where two actors stand against each other in a bi-polar system?"

If we consider these countries one by one, we come to the conclusion that non of them be a power strong enough to keep track to the US. European Union is weakened because of its problems in the decision making process. The political decisions are difficult to be taken when different voices are voluming up among the Member States. In my opinion the European Union can not be called a political union. It does not speak one voice when it comes to international conflicts. On the other hand we can say that the EU's powerful Member States are deterrence powers and in some situations they are

able to act as key actors, shaping the World politics. We can say without any doubt that the EU is one of the biggest economical powers in the World. But we shouldn't forget the fact that the EU still doesn't have a common army. We could consider Eurocorps or Member States' armies as a european army but we can't say that the EU has a proper army. Having a military power is the essential factor for becoming a superpower.

In the competition for power Russia is standing on a stronger position due to its historical position. Russia has always been an important international actor and even after the collapse of the Soviet Union and the important diminuation of its military power, it still has the ambitions and the means to influence the World politics and be an important strategic partner for the United States, as well as for the European Union. Russia has a powerful defense industry and is using its advantage coming from its geopolitical position of Worlds biggest energy producer. It has a powerful army and the nuclear power. It is certainly a deterrence power. During the last five years Russian economy was rising. In 2007 a situation of tention was created, when the USA decided to start negotiations with two Eastern European countries. The States wanted to deploy a radar in the Czech Republic and some missile launchers in Poland. The situation was familiar to the Cold War missile crisis. This caused a conflict between Russia and USA because Russia wasn't applying such launchers and radars in that region. This crisis hasn't been solved yet but both sides are trying to cope with that problem (especially at the G-8 Countries Summit, Rostock in June 2007). This crisis proves that Russia is still finds itself a superpower strong enough to be the oponents for US military actions and plans. According to Czech Prof. Petr Drulak[1] (13.06.2007, Interview with Prof. Petr Drulak at the TRT International TV) "Russia wants the USA to recognize Russia as a superpower because it is admitted commonly that the USA's Missile Shield Project can not stop Russia. But this game between these two countries has its historical roots and it can be describes as a display of power." Opinions on the question whether or not Russia is a superpower are divided. It is certain that Russia is a big power and it is a potential superpower. Russia's effort are directed towards becoming a superpower.

The other potential superpower, the People's Republic of China (PRC) is, with its rapidly growing economy, huge population, its nuclear power and powerful army, a strong competitor of the US. Although the PRC has an non-democratic regime, it succeeded in making revolutionary reforms in the field of economy since 1980s. Thanks

to these revolutions the PRC reached a stable growth rate and became an interesting partner for foreign investors. After China's entrace to the World Trade Organisation, other Members were forced to find some ways to protect their own industries against cheap Chinese products. This foreign investments and well developing economy effected positively to the China's internal industry and its productivity. This fast growth in the field of economy had its direct reflection in the defense industry of China. The Taiwan crisis was effect of China's developing defense industry.

Today, we can see the influence or direct engagement of China in many parts of the World. If this phenomenon will continue, China can certainly become a superpower in the near future. International actors, being aware of this fact, are looking for possibilities of cooperation with China. The country itself is searching for allies without taking into consideration the political regime of the country (for example.: South Corea, African states). New cooperation links occured in order to support China's race to become a superpower, such as Shanghai Cooperation Organization. PRC decided to close the possibilities to enter this organization to Russia, India and Iran. This decision created the polarization into the Shanghai Cooperation Organization group and the USA. On the other hand Venezuella is also not allowed to join the SCO, although its leader, Huga Chavez is known for his anti-american policy.

This process could produce a scenario where for example Russia or China could get engaged into the Iran – USA war. Or China could find its reasons to take part in the USA – North Korea war. Some scenarios for the future describe a direct China – USA war for World hegemony. A nuclear war would be possible, with spill-over effects for the whole World. Being aware of these conspiracy theories and facing the Chinese fast and stable rize of defense armament and spendings for new military inventions, it is necessary to ask: "Will there be 'second Cold War'? and "Is there any nuclear war threat?".

According to Dick Cheeney [2] (24.02.2007, Radikal Newspaper) "China's armament process is not peaceful and there is no match between what China said and what it practiced". In this case it seems that there is a polarization in the World. The US has found new competitor.

In this paper I will try to describe the PRC's army. By analyzing it, all its divisions and its armament process, I will try to evaluate its force and its potential as a future

Superpowers tool to conquest hegemony in the World. I intend to find an answer to the question : “Is PRC’s armament a threat for the global peace?”.

2. CHINA AS A MILITARY POWER

When we talk about the definition of the military power of China or China as a military power, at first we should discuss the power of China's army. The first question which comes into ones mind is: "Does China have a big and powerful army?". Other questions that have to be asked are: "Is China's army a threat for the World?" , "Are China's military spendings peaceful?". In my work I will try to give an answer to all these questions on the basis of the information that I have collected.

To answer the first question we should analize China's army, its weapons and arms. The facts are clear: we can say without any doubt that China has one of the largest armies in the World. In 2003 PRC had 2.3 million soldiers on duty. But the most important point in this section is the Chinese army's technological level. Is the chinese technology level caught up developed countries' technology level?

Table 2.1 – Comparison of Ground Forces Between Taiwan and PRC

Taiwan Strait Military Balance, Ground Forces			
	China		**Taiwan**
	Total	**Taiwan Strait Area**	**Total**
Personnel (Active)	1.4 million	400,000	130,000
Group Armies	18	8	3
Infantry Divisions	25	9	0
Infantry Brigades	33	12	13
Armor Divisions/Brigades	9	4	0
Armor Brigades	11	4	5
Artillery Divisions	3	3	0

Artillery Brigades	15	5	3+
Marine Brigades	2	2	2
Tanks	7,000	2,700	1,800
Artillery Pieces	11,000	3,200	3,200

(Source : Annual Report To Congress Military Power of the People's Republic of China 2007)

3. GROUND FORCES OF PLA

China’s ground forces have a great power due to the huge number of soldiers that enter into its composition and thanks to its deterrence power equiped with hi-tech weapons. In the past the PLA was known as a huge army but equiped with technologically old weapons and machines. Before the technological improvement was employed, manpower constituted the basis of this army's force. With time, light infantries with the support of massive artillery fire were getting more and more importance.

Together with the paralelly development of the Chinese economy, PLA tried to implement technological improvements of the World defense industries. PLA kept up with technological developments and acquired the new technological equipments. This caused the birth of a new doctrine at the PLA called the New Joint Doctrine of PLA. This doctrine has also found employment in tactical plans. Operations of attacking enemy’s strategical points gained more importance (for example: coomand centers, communication centers, transportation hubs , weapon platforms and airfields). In accordance with the new doctrine, another key point in the strategy is counter or unexpected surprise attack ability. This ability is available with the new mobilize units, PLAAF bombers air support and Second Artillery unit’s long range fires. It allows to attack vital points of the enemy. It decreases the war cost by shortening the operations in time and it makes it possible to use less ammunitions or supplies.

3.1 INFANTRY UNITS

PLA’s infantry units are impressing, with a huge number of soldiers and their modern weapons. The squad was reduced in size from twelve to nine men, which diminished the combat strength of the unit. Ten to twenty percent of PLA is trained and equiped to be rapid reaction units and fight such wars. PLA infantries are well equiped technological weapons. Basicly PLA infantry units are deterrance factors for their enemies with their 3 kind of rifles. First, Type 97 5.56mm Assault Rifle. This rifle is relied on by PLA and eligable to competite other powerful armies assault rifles. Its properties are:

Table 3.2 – Specifications of Type 97 5.56mm And RS Type 97 6mm AEG Assault Rifles

	Type 97 5.56mm assault rifle Specification	RS Type 97 6mm AEG Specification
Name	Type 97 5.56mm assault rifle	RS type 97 6mm AEG
Overall length	760mm	760mm
Overall weight	3.5kg	3.3kg
Caliber	5.56mm SS109,M193	6mm BB bullets
Velocity	920m/s’	90m/s’
Sight	Mechanical sight and optical sight	Mechanical sight and optical sight
Cartridge	30rds magazine or 75rds drum magazine	130rds, 300rds magazine or 2800rds drum magazine

(Source : http://www.realsword.com.hk/gun_97.htm)

Figure 3.1 – Chinese Assault Gun

Another rifle that PLA ground force's soldiers used, is Type 67 7.62mm General Purpose Machinegun. This machineguns evolution is a continous process that began in the late 1950's. Today PLA uses 4 kind of this machineguns. These are: Type 67, Type 67-I, Type 67-II and Type 67-IIC. Actually we can say that Type 67 machineguns pruduction gave his place to the new lightweight QJZ-89 12.7mm heavy machinegun (HMG) and QLZ-87 35mm automatic grenade launcher (AGL).[3] (Yan Timothy – PLA's Infantry Support Weapons I : Type 67 7.62mm General Purpose Machine Gun)
The PLA prefares to use the QW-2 MANPADS Anti-Aircraft Missile System is than the Man Portable Air-Defense System. It is the third generation of Chinese Air defense missile industry. "The QW-2 is characterized by passive homing, high portability, and infrared guidance. The system is designed for ground combat troops to use against airborne threats such as helicopters and low-flying aircraft."[4] (http://www.sinodefence.com/army/surfacetoairmissile/qw2.asp

3.1.1 Reserve Forces

Today PLA has around six hundred thousand reserve forces including 70 infantry, air defense, artillery divisions and around 100 independent infantry, artillery regiments.[5] (The Military Balance, 2001-02 International Institute for Strategic Studies, London: Oxford University Press, 2001 pp. 188-189) The history of PLA's reserve forces starts with the application of the US Army model in 1983. In 1998 CMC has ordered to expand these reserve forces. Reserve forces are being used generally in disaster missions or civil based operations. They are well trained especially in the role of an assistant at the constructions, medical assitance and in emergency supply. Generally the soldiers are trained in military academies and most of them is working as officers. We can distinguish four main mission groups: groups for millitary affairs, for political affairs, for logistic and rear echolon support and groups of technical specialists. With these properties reserve forces form one of the most important parts of PLA.

3.1.2 Special Light Mechanized Infantry Regiment

The PLA was undergoing a changing evolution. It needed new regiment to be tested and activate the New Joint Doctrine. This process was finalised with the creation of Special Light Mechanized Infantry Regiment (LMR) in October 2005.

LMR's command and control deppartment shows differences from the other regiments. LMR's satellite connections supplied with the special units by the motorilized satellite computer connection units. Many vehicles in LMR have digital connectivity with the headquarters for one by one personal digital assistance. This system gets the online assitance of the headquarters. The officers which are equiped with laptops, help these units from headquarters with the satellite connection. They help the infantry units to find their way and to report the position of targets. This system activates the New Joint Doctrine and is more effective.

LMR regiment's main units are the Light Mechanized Infantry Companies (LMIC). LMIC units use All Terrain Vehicles (ATV) 8x8. "The 8x8 ATV routinely carries six infantrymen: a squad leader, gunner, driver, and three others that form a dismounted fireteam. 8x8 ATVs have been seen armed with either a QJZ89 12.7mm heavy machinegun (HMG) or a W87 35mm automatic grenade launcher (AGL) and reportedly sometimes mount a mortar. All 8x8 ATVs appear to have a provision for mounting the QBB95 5.8mm squad automatic weapon on a pintle at the front-left of the ATV. Each 8x8 ATV is also equipped with a winch, tactical radio, satellite positioning system, and tactical data terminal."[6] (Chan Andrew and Miles Stephen, PLA's Latest Experiment With Mobility and Fire Power: A Look at the Special (Experimental) Light Mechanized Infantry Regiment, 13th Group Army, Chengdu Military Region). ATV's can be carried with Mi-17 transporter helicopters.

LMR unit's most important ability is the fast moving ability, acieved thanks to "Brave Warrior" fast attack vehicles (FAV). Now PLA is deploying new FAVs called "Iron Eagle". Iron Eagle is also equiped with W99, an 82mm automortar in the pattern of the Russian 2B9 Vasilyek. Several air defense versions with a secondary direct fire role are armed with the Type 87 twin 25mm cannon and dual HN-5 surface-to-air missiles. At least one FAV has been seen armed with a HJ-8 antitank guided missile launcher (ATGM) and others with heavy machineguns and automatic grenade launchers.

Another key element of LMR are the artillery batteries. ”Artillery Battery replicates the tube, rocket, and anti-tank batteries of a typical PLA artillery battalion in a microcosm. Tube artillery is represented by a platoon of PP87 82mm mortars carried in BJ2020SJ jeeps. A platoon of unique 8-tube launchers mounted on 6x6 ATVs delivers 107mm rockets. The new PTL02 105mm 6x6 wheeled assault gun provides antitank firepower to the LMR.”[7] (Chan Andrew and Miles Stephen, PLA’s Latest Experiment With Mobility and Fire Power: A Look at the Special (Experimental) Light Mechanized Infantry Regiment, 13th Group Army, Chengdu Military Region)

LMR’s sniper units use XZ-AT-400 4x4 ATV with a JS 12.7mm sniper rifle. With this vehicle the sniper can be settled very fast.

Figure 3.2 – Sino-Mab Group Industries model XZ-AT-400 4x4 ATV with a JS 12.7mm sniper anti-material rifle

LMR’s other light vehicles are Beijing Jeeps, Buggy Beijing Jeeps and Blackhawk Helicopters. At last LMR’s electronical warfare detachments and UAVs are providing the electronic intelligence.

LMR’s Heavy Mechanized Infantry Company (HMIC) uses Type-96 Battle Tank and Mi-26 helicopter for their refuelling. There are three strategies that can be applied witht the use of HMIC in the LMR. First the air assult of the LMIC, attemping a mission from

land, and providing link up. LMIC's secerus an aircraft transporting HMIC with the transport planes and reinforcements for the LMIC. HMIC is the placeholder for increasing future capability.

One LMR regiment has:

1) Battalion Headquarter;

2) Light Mechanized Infantry Company:

a) 6x 8x8 ATV w/QJZ8912.7mm HMG,

b) 3x 8x8 ATV w/W87 35mm AGL,

c) 3x 8x8 ATV w/PP93 60mm Mortar,

d) 9x 4x4 ATV;

3) Heavy Mechanized Infantry Company:

a) 3x Type 96 Main Battle Tank,

b) 3x Type 86 Infantry Fighting Vehicle (IFV),

c) 3x ZBD97 IFV;

4) Fire Support Company:

a) 1x Company HQ FAV,

b) 1x FAV w/Minigun,

c) 1x FAV w/HJ-8 ATGM FAV,

d) 3x FAV w/W99 82mm Automortar,

e) 3x FAV w/Type 87 25mm/SAM,

f) 3x FAV w/QJZ8912.7mm HMG,

g) 3x FAV w/W87 35mm,

h) 1x 4x4 ATV w/JS 12.7mm Sniper Rifle;

5) Artillery Battery;

6) Battery HQ/Fire Direction Center:

a) 3x 82mm Mortar,

b) 3x PTL02 105mm Wheeled Anti-Tank Gun,

c) 3x 107mm Multiple Rocket Launcher ATVs;

7)Recon Platoon:

a) 1x Command Jeep with 2x HN-5 MANPADS,

b) 2x Dune Buggy Jeeps w/Heavy Machinegun/HJ-73 ATGM,

c) 1x 4x4 ATV with PF98 120mm Recoilless Rifle,

d) 1x 4x4 ATV;

8) Electronic Warfare Detachment;

9) UAV Detachment;

10) Medical Detachment (at least two 4x4 ATV ambulances). [8](Chan Andrew and Miles Stephen, PLA's Latest Experiment With Mobility and Fire Power: A Look at The Special (Experimental) Light Mechanized Infantry Regiment, 13th Group Army, Chengdu Military Region)

3.2 ARMORED UNITS

Chinese Armor units is in the developing process, like the other units. PLA tank divisions are mainly formed as: Type 80, Type 88, Type 89, Type 85, Type 96, Type 98 and Type 99. Type 99 is the Chinese new third generation tank. Type 59D, Type 59D1, Type 69 and Type 79 tanks are retired and they aren't being used anymore. The other PLA tanks are very old and second generation tanks, with the exception of Type 98 and Type 99. But in PLA the tank modernization process is continuing.

Red Arrow 9 (Hian Jian 9) Anti Tank Missile is the improved version of Hian Jian 8 (HJ-8). It's a new type of laser guided anti-tank missile. "It uses the guidance scheme of optical aiming, tube launching, TV goniometer, laser command transmission and digital controlling technology. By keeping the crosshair continually on the target; TV goniometer can calculate the angle variation of the missile relative to the line of sight and the guidance unit generates the laser commands that automatically direct the missile to its target. It's maximum range is 5000 m and it can carry 12 missiles at the same time. It's laser guided transmission range is 5500 m. It is capable to night fights and high anti-jamming. With its optic periscope it can see the target over 7 km range. It can see target as thermal around 4000 m and can recognise around 2500 m.[9] (He Garrick, Red Arrow 9 (Hian Jian 9) Anti Tank Missile)

New Type 99 (ZTZ99) Main Battle Tank is known as Type-98G which is the last and most developed production of Chinese defense industry. It entered in service in 2001. It has revolutionary identity in PLA as its improvement of firepower, maneuvre capability and protection. Because of its high costs PLA decided to produce only 200 of them and has started to upgrade some Type 96 to Type 99. In 1999 its price was 1.9 million dolars.

Its basis is the mixture of Russian T-72 and Western Style tanks in its shape and technology. The hull is very similar to T-72 but one meter longer than it. The autoloader and 125mm smoothbore main gun are making it possible to drive this tank with 3 soldiers inside. It carries made by the Russian 9M119 refleks anti-tank guided missile with a license from Russia. The missile uses a semi-automatic laser beam-riding guidance. Its range is around 100m to 4,000m. It is useful for engaging tanks fitted with ERA as well as low-flying air targets such as helicopters. We can say that Type 99's engine has a similar style as the German tanks with a liquid cooled and turbo charged diesel engine.

In Type 99, Type 98's 1200 rpm motor was changed to 1500 rpm and explosive reactive armour (ERA) modules added on the turret and hull. Its main armament includes a dual-axis stabilised 125mm/50-calibre ZPT98 smoothbore gun, which is equipped with an autoloader, a thermal sleeve, and a fume extractor. The gun can be fired by either electronic or manual control. The gun barrel can be replaced within one hour. Loading is mechanical with 41 rounds carried inside the turret and vehicle hull. The gun can fire about 8 rounds per minute using autoloader and 1~2 rounds per minute with manual loading. Ammunition includes armour piercing fin stabilised discarding sabot (APFSDS), high explosive anti-tank (HEAT), and high explosive fragmentation (HE-FRAG). The primary kinetic energy armour-piercing ammunition for the 125mm tank gun is the APFSDS round with a 30:1 length/calibre heavy tungsten alloy penetrator and that the Chinese have developed depleted uranium (DU) rounds for their tanks.[10] (Warford Jim, The New Chinese Type 98 MBT: A Second Look Reveals More Details). The round has a muzzle velocity of 1,780m/s and is capable of penetrating 850mm steel armour at a distance of 2,000m. A depleted uranium (DU) APFSDS round has also been developed, which can penetrate 960mm steel armour at a distance of 2,000m.

The tank equipt some laser bases systems like IFF , LWR and LSDW. IFF (Identification of Friend or Foe) is destinated to identify other units and to judge if it is a friendly or foe unit. LWR (Laser Warning Receiver) is warning the crew from the enemy's units range, and guiding the weapons to reach the enemy targets. LSDW (Laser Self Defense Weapon) is distrupting enemy laser guide missiles and breaking the enemy observation optics (optical, night vision, thermal imager, laser rangefinder, etc.), and damage the eyesight of the enemy's gunner.

The maximum speed of Type 99 is 80km/h on the road and 60km/h across the country. Acceleration from 0 to 32km/h takes 12 seconds. The transmission provides seven forward and one reverse gears[11]. (http://www.sinodefence.com/army/tank/type99.asp)

3.3 ARTILLERY UNITS

The artilleries which exist nowadays in PLA Artillery Divisions are shown in Table 2. The artilleries in PLA are basicly divided in two: towed artilleries and self-propelled artilleries.

Table 3.3 – Specifications of Artilleries

SYSTEM	CALIBER	TYPE	ORIGIN	RANGE (M)	MAX EFF DIRECT FIRE RG (M)	ERBB OR RAP RANGE (M)	MIN RANGE (M)	ECHELON	REMARKS
TYPE 31 / TYPE 63	60	MORTAR	PRC	1530			200		
TYPE 53	82	MORTAR	PRC	3040			100		
TYPE 53	120	MORTAR	PRC	5700			460		
TYPE 54	122	HOWITZER	PRC	11800					CHINESE AND 3D WORLD USE
TYPE 54	152	HOWITZER	PRC	12400					CHINESE COPY OF D1
TYPE 54	76	AT GUN	PRC		1000				
TYPE 54-1	122	SP HOWITZER	PRC	11800					SP COPY OF M-30
TYPE 54-1	122	HOWITZER	PRC	11800					CHINESE COPY OF M30

TYPE 55	557	AT GUN	PRC	8400			
TYPE 56	885	FIELD GUN	PRC	15650	970		CHINESE AND 3D WORLD USE
TYPE 59	1100	FIELD GUN	PRC	20000	1040		CHINESE COPY OF BS-3/M1944
TYPE 59-1	1130	GUN	PRC	27490		38000	CHINESE COPY OF M46
TYPE 60	122	FIELD GUN	PRC	24000			CHINESE COPY OF D74
TYPE 63	130	MRL		15000			
TYPE 66	152	GUN-HOW	PRC	17230		21880	CHINESE COPY OF D20; WIDE 3D USE
TYPE 74	284	MRL	PRC	1500			CHINESE MINECLEARING MRL; MAY USE A FUEL-AIR TYPE WARHEAD; 10 RD LAUNCHER
TYPE 762	425	MRL	PRC	1000			CHINESE MINECLEARING MRL; MAY USE A FUEL-AIR TYPE WARHEAD; 2 RD LAUNCHER
TYPE 81	107	MRL	PRC	10000			JAMMER ROCKETS AVAILABLE
TYPE 81	122	MRL		20580			

TYPE 83	273	MRL	PRC	40000				10 RD LAUNCHER; SPECIALISED MINELAYER MRL
TYPE 83	152	SP GUN-HOW	PRC	17230		39000		
TYPE 83	122	HOWITZER	PRC	18000			700	
TYPE 83	122	MRL		20580				
TYPE 83	152	GUN	PRC	30370	1170	38000		
TYPE 85	122	SP HOWITZER	PRC					SP COPY OF D-30
TYPE 85	130	MRL		15000				
TYPE 86	1100	AT GUN	PRC	13654	1800			
WA-021	155	GUN-HOW	PRC	30000				
WAC 21	155	GUN-HOW	PRC			39000		
WS-1	320	MRL	PRC	80000				

(Source : http://www.fas.org/man/dod-101/sys/land/row/arty_frame.htm)

3.3.1 Towed Artilleries

Towed artilleries can be defined in four headlines according to their usage area which are field artilleries, anti-tank guns, artillery rockets and anti-aircraft artilleries.

3.3.1.1 Field artilleries

Towed artilleries are Type 54, Type 59, Type 60, Type 66, Type 83 122mm, Type 83 152mm, Type 86 and WAC-021s. Type 54 is a one to one copy of Soviet M-30 artillery. Type 59 is also another copy of Soviet M-46s which is produced by NORINCO industries in China. Type 60 was Soviet D-74 and Type 66 was Soviet M-55. PLA produced its artilleries with the same way of one to one copies of Soviet artilleries until Type 83.

Type 83 122 mm Howitzer towed artillery is the developed version of Type 54. In each battalion there are 18 Howitzers. Type 83 152mm towed artillery was taken in service in the late 1980s. It took its design certificate in 1986 and produced for the project of replacement Type 54s. It is designed to provide long-range direct/indirect firepower against enemy personnel and other area targets.[12]

(http//www.sinodefence.com/army/artillery/type83towed_152mm.asp)

Type 86 towed artillery was produced for firstly international market than internal market. It is developed version of Type 83 with its light weight, long range and 360 degree fire any direction maneuvre capability. The gun has a semiautomatic, vertically-sliding, wedge-type breechblock. The Type 86 fires 18km-range FRAG-HE, fin-stabilised high-explosive anti-tank (HEAT-FS), 21km-range extended-range, full bore, hollow base (ERFB-HB), 15km-range submunition, illuminating, and smoke projectiles.[13] (http//www.sinodefence.com/army/artillery/type86towed_122mm.asp)

PLL01 155mm towed artillery is designed with the same Type 89 design as an Austrian design in accordance with NATO standards created in 1987. At the beginning of 1990s it entered into service. It was the first NORINCO's production of a NATO-standart weapon. The PLL01 matches the firepower of the PLA's existing 17km-range 152mm Type 66 gun-howitzer, but with much extended firing range. By introducing the extended-range full-bore (ERFB) and extended-range full-bore base bleed (ERFB-BB) projectiles, the artillery can reach maximum range of 30km and 39km respectively. This represents a significant improvement in the PLA's long-range artillery firepower. A small number (54 howitzers) has been fielded by the PLA since the 1990s for trial and evaluation. China obtained the Russian Krasnopol laser-guided projectile technology in the 1990s, and has successfully developed its own 152/155mm laser-guided ammunitions. Designed to defeat armoured vehicles and weapon emplacements, the projectile has inertial mid-course guidance and semi-active laser homing. The projectile has a range of 3~20km, and can hit a target by the first shot without registration.[14]

(http//www.sinodefence.com/army/artillery/pll01towed_155mm.asp)

WAC-021 155mm gun, which is also mounted on the PLZ-45 self-propelled gun system, represents a move by Chinese industry towards the world-standard 155mm caliber, in contrast to the 152mm Soviet-standard caliber that is used by the People's Liberation Army. Its range is 39000 meters.

3.3.1.2 Anti-tank guns

The towed anti-tank guns which exist in PLA Ground Forces Artillery Divisions are Type 73 100mm and Type 83 100mm. Type 73 100mm is developed in 1970s and take service to replace Type 56s in 1983. Its maximum fire range is 13.70 km. It can fire 8 to 10 shoots per minute.

Type 86 100mm has a smoothbore technology, like Type 73. It is the production undertaken during the Five Years Plan in 1981. Type 86 was more powerful than previous anti-tank gun systems in China's inventory, and is supposedly effective against composite and spaced armor. NORINCO claimed that the Type 86 is capable of penetrating the frontal armour of the basic variant T-72 at a distance of 2,000m, and later improved variants could penetrate the T-72 and T-80 fitted with explosive reactive armour (ERA). The gun also outperforms Western 105mm tank guns. The Type 86 is in service with PLA motorised infantry divisions as the primary antitank artillery weapon.[15] (http://www.sinodefence.com/army/artillery/type86at_100mm.asp)

3.3.1.3 Artillery rockets

The towed artillery gun of PLA Artillery Divisions is Type 63 107mm but Type 63 retired from active service. Type 81 replaced its place in the army.

3.3.1.4 Anti-aircraft artilleries

PLA Artillery Divisions are the towed anti-aircraft artilleries are Type 59, Type 65, Type 74, Type 85, Type 87, Type 90.

Type 59 (57mm and 100mm) had an important role at the Chinese artillery development process. The 57mm version was made as a copy of Soviet S-60 in 1960's. It was useful for aeroplanes flying slow and with low altitude. For 100mm version a copy was made on the basis of Soviet KS-19. It was produced in 1940's. It was being used until 1980's. Even today there is a small number of Type 59s existing in PLA.

Type 65 was developed from Type 55 with a Chinese design in the 1960's. It was designed for hitting enemy's targets at the attitude of 8500m. It constitutes the basis of the new Chinese anti-aircraft artilleries. Their maximum slant range is 3,500m. The maximum rage of fire is 160~180 rounds/min. Its self destruction time is 9 to 12 seconds. Each cannon is fed by a magazine that holds 5 rounds.[16]

(http://fas.org/man/dod-101/sys/land/row/type-65.htm)

Type 74 is the developed version of Type 65. The difference between these two artilleries is that Type 74 has a target searching radar and is made to be used either manually or remotely.

Type 85 is officially produced under the certificate of Russian ZU-23-2. But China produced this artillery for export and it didn't take it in service in PLA.

Type 87 twin 25mm anti-aircraft system is very important becuse it is the first western style (25mm calibre) artillery system made in China. NORINCO started to work on this project in 1979 and after 3 years of tests, the system entered in service in 1987. Fire testing results showed that the 25mm cannon is highly effective against both low-flying and ground targets. It can move horizontally 360 degree and its effective range is 3200m. Its rate of fire is 600 to 700 rounds per minute.

Type 90 twin 35mm anti-aircraft artillery is the copy of Swiss Oerlikon GDF. It is known for its effectivity, achieved thanks to a low attitude air defense. The weapon was designed to engage high-speed, low-flying aircraft, helicopters, unmanned aerial vehicles (UAV) and cruise missiles. A tracked self-propelled variant of this weapon has also been produced and tested but it did not enter into the PLA service. It replaced Type 65 and Type 74. China bought some Oerlikon GDF from Switzerland in 1980s. Then China started to produce the version of GDF-2 under the license of Type 90. "The Type 90 includes a computer controlled electro-optical director for 3-dimensional target tracking in conjunction with the laser range finder. The Type 902 (Chinese copy of the Skyguard) millimetre-wave target searching radar has a detection range of 8,000m. The AAA system can work either in conjunction with the Type 902 fire control radar or autonomously. A typical battery using the Skyguard radar consists of two twin 35 mm gun platforms with a single fire control radar. In addition, the 35mm guns are also highly lethal against ground targets." It is eligable to fire 1100 rounds per minute and its muzzle velocity is 1.175 m/s.[17]

(http://www.sinodefence.com/army/antiaircraft/type90towed35mm.asp)

3.3.2 Self-Propelled Artilleries

Self propelled artilleries are divided in two versions: self propelled tracked and self propelled wheeled. Like the other sections of PLA self-propelled artilleries are evolving.

3.3.2.1 Self-propelled tracked field artilleries

In the Chineese army there are such Self-Propelled tracked field artilleries like: PLZ05 (155mm), PLZ45 (155mm), Type 83 (152mm), Type 89 (122mm), Type 70 (122mm), YW381 (120mm), YW304 (82mm).

YW304 82 mm mortar artillery is an armoured unit. It was produced for export. It didn't enter the internal market and wasn't used in PLA. Its fire range is 3040 m.[18] (http://www.army-guide.com/eng/product3480.html)

YW381 120 mm mortar artillery is a Type 64 mortar artillery's troop compartment added version. Its indirect fire range is 7700m. Also this artillery was made for the external market and China exported it.

Type 70 122mm artillery is a version of the Soviet 122mm D-30 howitzer mounted on Type 63 Personnel Carrier chassis. It was produced in 1981. Because of some mistakes in its design, only a small number of that weapon was produced (around 200). Its indirect fire range is 11.8 km and speed at road is 56 km/h[19].

(http://army-guide.com/eng/product985.html)

Type 89 122mm Self-Propelled artillery was developed in the late 1980's. The main reason for developing this artillery is to pursue divisions in the battle and to support them with backfire. It was produced on the basis of the Soviet D-30 Howitzer. It has been produced in 1989 and started to be employed in the army in 1990. After 2000 PLA started to present it during exercises. The main armament of the Type 89 is the 122mm, 32-calibre howitzer gun barrel developed from the Type 85 122mm towed howitzer, which features the box-shape shield for the recoil-recuperator mechanism mounted

above the tube and the multi-baffle muzzle brake. It features a aluminum-alloy turret, semi-automatic loading mechanism, automatic fire suppression, NBC protection, and a new fire control computer. The howitzer can fire all types of Chinese and Russian 122 mm ammunitions. The maximum range of fire is 18km for standard high-explosive (HE) rounds and 21km for extended range full bore, hollow base (ERFB-HB) rounds. The howitzer is fitted with a semi-automatic loader, with a maximum rate of fire of 6~8 rounds/min. The howitzer carries 40 rounds inside the turret[20].

(http://www.sinodefence.com/army/artillery/type89sp_122mm.asp)

Type 83 152 mm Self-Propelled artillery is a result of many years of work. It was created by 674 Factory in Harbin in the beginning of 1980's. At that time it was the most modern artillery in PLA. It was compatibile with the first Chineese laser guided projectile (which was based on the Russian technology). For this artillery many factories from different parts of China worked cooperatively and every factory built a different part of it. The first production started in 1983 and the mounted on a full-tracked chassis was first seen in public in October 1984. A 12.7 mm Type 54 anti-aircraft machine gun is mounted on the roof and a 7.62 mm machine gun is fitted next to the main barrel. It is capable to fire all type 152mm rounds. The main armament cannon is based on the Chinese 152-mm Towed Type 66, added with a fume extractor and autoloader, mounted on an entirely new chassis similar to the Russian 152-mm SP Gun-Howitzer 2S3. The laser guided projectile has a range of 3~20km, and can hit a target by the first shot without registration. The layout of the Type 83 follows the general pattern of the American M109, with six roadwheel pairs, the engine and drive sprocket at the front, and the large square turret at the rear. There are extensive storage points around the hull and turret. The crew communicates with each other using the Type 803 intercom system.[21] (http://www.fas.org/man/dod-101/sys/land/row/type-83.htm)

PLZ45 is one of the modern Chinese artillery armoured unit. It is produced by NORINCO with the cooperation with 123 Factory, 127 Factory, 674 Factory and Beijing University of Science and Technologyin the early 1990s. It is made for external market but the developed version of its is being introduced into PLA service. Especially Kuwait Army was a good customer of PLZ45 in 1997. For this artillery PLA developed a new chasis which is difference from the others artilleries chasis of Type 321. The latter is capable of firing the Chinese built version of the Russian KBP laser guided

round which uses new Chinese 155mm laser guided ammunitions. The projectile has a range of 3~20km, and can hit a target by the first shot without registration. There is also a roof-mounted W-85 12.7mm anti-aircraft machine gun and two sets of four-barrel smoke grenade launchers on the turret's side. The fire-control system of the PLZ45 includes an automatic laying system, optical sighting system, gun orientation and navigation system, and a GPG receiver. The PLZ45 fires a range of Extended Range Full Bore (ERFB) ammunition, including High Explosive (ERFB/HE), Base Bleed High Explosive (ERFB-BB/HE), ERFB-BB/RA, ERFB/WP, ERFB/Illuminating, ERFB/Smoke, and ERFB-BB/Cargo[22]. (Martin Andrew, China Brief Journal, Guarding The West: China's New Mechanized Infantry Division)

PLZ05 is the developed version of PLZ45. Its development process started in 1990s, the prototype was produced in 2003 and serial productions started in the middle of 2004. It has a new enlarged turret that bears a resemblance to that of the Russian MSTA-S 2S19 152mm self-propelled howitzer. The new artillery system is almost certainly fitted with a Chinese copy of the 2S19's fully automatic loading system, which has been proven to much more efficient and reliable compared to the Chinese indigenous semi-automatic loading system on the PLZ45 and Type 83.[23]

(http://www.sinodefence.com/army/artillery/plz05sp_155mm.asp)

3.3.2.2 Self-propelled wheeled field artilleries

PLA has two self-propelled wheeled field artilleries which are SH-1 155mm and SH-2 122mm.

SH-1 155mm self-propelled wheeled field artillery is developed by NORINCO for external market. The development process has continued since 2002. PLA doesn't believe in its capacities of sufficiency and this development process is still continuing. PLA added this artillery when it was developed enough and capable to competite with other modern artilleries. It is mounted on 6x6 armoured chasis. The vehicle is also highly mobile and it can reach a maximum speed of 90km/h at the roads.[24]

(http://www.deagel.com/Self-Propelled-Howitzers/SH1_a001849001.aspx) The main armament of the SH1 is a 155mm/52-calibre howitzer, which can fire a range of ammunitions developed by NORINCO, including: Extended-Range, Full-Bore, Rocket-

Assisted, High-Explosive (ERFB-RA/HE) and Extended-Range Full-Bore, Base-Bleed, High-Explosive (ERFB-BB/HE). When using the ERFB-BB/HE round, the howitzer can reach a maximum range of 53km. The howitzer can also fire the 155mm semi-active laser-guided projectile developed by NORINCO based on the Russian Instrument Design Bureau (KBP) 152mm Krasnopol projectile. In addition, the howitzer is able to use the standard NATO 155mm ammunitions. The vehicle carries 20 rounds onboard. Secondary weapon includes a 12.7mm QJC88 anti-aircraft machine gun mounted on the roof of the driving cab.

SH-2 122mm self-propelled wheeled field artillery is the second 6x6 truck-mounted artillery system developed by NORINCO in recent years. The artillery system was first revealed during the 2007 Abu Dhabi International Defence Exhibition (IDEX 2007) on 18-22 February 2007. The SH2 was developed mainly for the export market, but it cannot be ruled out that the artillery system may also be adopted by the PLA in its airborne force and marine corps. In its developing PL-96 122mm towed gun was taken the basis. It is mounted on 6x6 armoured chasis which can reach 90 km/h with maximum loaded situation. The howitzer has a rate of fire of 6 to 8 rounds per min. The howitzer has a maximum firing range of 22km when using the NORINCO Extended-Range, Full-Bore, Hollow-Base (ERFB-HB) round, or 27km when using the NORINCO Extended-Range, Full-Bore, Rocket-Assisted (ERFB-RA) round. The howitzer can also fire the Russian D-30 122mm ammunitions because of PL-96 122mm towed gun is copy version of Russian D-30 122mm so it can eligible to fire these ammunitions. NORINCO has been producing the 152/155mm laser-guided projectile based on the Russian Instrument Design Bureau (KBP) 152mm Krasnopol projectile design under license, but it is not known whether NORINCO has also obtained the license to produce the KBP Kitolov 122mm laser-guided projectile. The SH2 is also equipped with a computerised fire-control system, including GPS navigation and positioning, targeting, and communications systems. The artillery is used within a C4ISR network at company or battalion level.[25] (http://www.sinodefence.com/army/artillery/sh2.asp)

3.3.2.3 Self-propelled tracked anti tank guns

The only self-propelled tracked anti tank gun in P http://www.sinodefence.com/army/artillery/sh2.asp LA is Type 89. Type 89 anti tank gun armoured artillery was developed in 1980s by 447 Factory. After new modern tanks were produced all over the world, it occured that there is a necessity of powerful anti tank gun for being effective to this kind of strong armour. Type 89 is a product for a long working period from 1970s to 1984. Its main armament is a 120mm/50-calibre high-pressure smoothbore gun with a thermal sleeve and a semi-automatic gun loader. The fume extractor is located in the middle section of the gun barrel. The gun can fire 10 rounds in one minute.

The gun can fire APFSDS, HEAT and HEAT-FRAG. The APFSDS round has a muzzle velocity of 1,660m/s and a maximum fire-range of 2,500m. The high explosive (HE) round has a muzzle velocity of 960m/s and a maximum fire-range of 9,000m.

Auxiliary weapons include one 7.62 mm coaxial machine gun, with a maximum fire-range of 1,800 m and a fire rate of 250 rounds/min. A 12.7-mm/50-calibre anti-aircraft machine gun is mounted on the command cupola, with a maximum fire-range of 2,000m.

Fire accuracy is attained by a TSFCS fire control system with night vision and laser rangefinder input. The 120mm main gun is not stabilised, therefore the Type 89 cannot fire while moving.[26]

(http://www.army-guide.com/eng/product2389.html?PHPSESSID=c7d723b9cb73466898f01ccd85c07282)

3.3.2.4 Self-propelled wheeled anti tank guns

Self-propelled wheeled anti tank guns in PLA are Type 75 105mm recoilless gun and PTL-02 100mm assault tank destroyer.

Type 75 105mm recoilless gun is developed in 1970s and took in service in 1975. It was mounted on BJ212 4x4 jeep (later BJ2020S Jeep which is the developed version of BJ212) and designed for hitting light armoured units. Today it is still in active service. Its main weapon is a 105mm recoilless rifled gun firing High-Explosive (HE) and Fin-

Stabilised High-Explosive Antitank (FS-HEAT) rounds. The gun is manually operated by 4 or 5 crews. If necessary, the gun can also be dismounted from the vehicle and carried by the crew over a short distance. The vehicle carries 6 or 7 rounds. With the technological improvements laser range finder and fire control computer added on it. Its direct fire range is 580m and maximum fire range is 7700m.

PTL-02 100mm assault tank destroyer is a mixture of Type 92, Type 88. 6x6 and Type 92 wheeled armoured vehicles mounted with Type 86's 100mm smoothbore anti tank gun which can fire armour piercing fin stabilised discarding sabot (APFSDS) with tungsten core, as well as HEAT and HE rounds. It is constructed on the three-man turret of PTL-02 is developed from the turret of the Type 88 MBT. Fire accuracy is attained by a primitive FCS light spot fire control system with IR night vision and laser rangefinder input. The same fire control system is also fitted on the Type 88. China has also developed the 100mm gun-launched missile produced from the Russian Bastion technology. The missile has a maximum range of around 4,000 to 5,000m and a single hit probability of over 90%. As well as being used for anti-armour warfare, the missile can also be used to attack low-flying air targets such as helicopters. PTL-02's motor is a German-designed BF8L413F 4-stroke, 8-cylinder, turbo-charged, air-cooled diesel engine with a standard power of 320hp at 2,500r/min. It is using in PLA Rapid Force since 2003[27]. (http://www.sinodefence.com/army/artillery/ptl02.asp)

3.3.2.5 Self-propelled tracked artillery rockets

The only self-propelled artillery rocket in PLA is Type 89 122mm. It is the developed version of Type 81. After the great success of Type 81 NORINCO create da new project of Type 89. Type 89 has a computerised fire control system that can be more effective and very appropriate shots. The Type 89 fires 122mm free rockets to a maximum range of 20~30km depending on the warhead type. The rocket consists of one piece, with the warhead attached with the rocket motor. A fixed amount of propellant is contained in the rocket motor. The rocket uses fin and low speed spin stabilisation to ensure the firing accuracy. The rocket delivers high-explosive (HE) warheads containing steel balls and prefabricated fragments. NORINCO has also developed a range of specialised warheads including High-Explosive Incendiary (HEI), anti-tank/anti-personnel

submunition, and mind-laying, all of which can be fired from the Type 89 launcher. It can reload rockets in 3 minutes.

3.3.2.6 Self-propelled wheeled artillery rockets

Self-propelled wheeled artillery rockets in PLA are Type 70, Type 82, Type 81, Type 90, Type 83, WS-1/2, WM-80, A-100 artilleries.

Type 70 130mm multiple launch rocket system is developed in 1970s with adding on Type 63 130mm trucked rocket launcher to Type 63 armoured personel carrier. In the late of 1990s the artillery retired and gave its place to Type 89 122mm artillery rocket system. It was eligible to fire 10 km range. It has a 130mm (19-tube) multiple rocket launcher and its motor was powered by a model 6150L inline, 6-cylinder, 4-cycle, water-cooled 260 horsepower diesel engine[28].

(http://www.inetres.com/gp/military/cv/inf/YW-531.html)

Type 82 rocket launcher contains 30 tubes housing 133mm rockets which is developed in 1980s. It is mounted on a 6x6 truck with an additional 30 rockets stored for fast reload. The system is capable of launching all 60 rockets within a 5 minute period. Variants incorporate the same caliber rocket in various quantities on other types of wheeled and tracked vehicles. This very portable, versatile rocket system is widely used throughout the PLA[29]. (http://www.emeraldesigns.com/matchup/artillery2.htm)

Type 81 rocket launcher is the Chinese developed version of Soviet BM-21 which captured by PLA in the Sino-Vietnam conflict. NORINCO tried to develop this artillery and started serial production in 1982. The Type 81 was designed to deliver a high volume of fire within a very short period of time to cover strategic places that under attack. Type 81 is not productive in target accurancy. The Type 81 fires 122mm free rockets to a maximum range of 20km. The rocket consists of one piece, with the warhead attached with the rocket motor. A fixed amount of propellant is contained in the rocket motor. The rocket uses fin and low speed spin stabilisation to ensure the firing accuracy. The rocket delivers high-explosive (HE) warheads containing steel balls and prefabricated fragments. NORINCO has also developed a range of specialised warheads including High-Explosive Incendiary (HEI), anti-tank or anti-personnel

submunition, and mind-laying, all of which can be fired from the Type 81 rocket. Type 81 can fire 40 rockets in 20 seconds[30].

(http://www.sinodefence.com/army/mrl/type81_122mm.asp)

Type 90 is using Type 81 122mm rocket system. It started to develop in 1990s and the new version of Type 90B was maded in 2004 but NORINCO produced this artillery for external market. The artillery reconnaissance vehicle for the Type 90B is based on the 6X6 WZ551 wheeled armoured personnel carrier. The biggest differences between Type 81 is reloading mechanism developed and this time that taken at the reload decreased 7 minutes to 3 minutes. Another difference is improved fire accurancy with the new GBS mechanism. The rocket can deliver High-Explosive (HE), High-Explosive Fragmentation (HE-FRAG), High-Explosive Incendiary (HEI), anti-tank/anti-personnel submunitions, and mind-laying warheads of 18.3kg to 22kg at standard range, or 26kg to 28kg at reduced range. These rockets could also be launched from the older Type 81 rocket system.

Type 83 273mm multiple launch rocket system is based on a Type 60-1 tracked prime mover which is the similar of US MLRS. It is developed in 1970s and this production duration finished in 1988. It is mounted on 8x8 TA-550 truck chasis. It has eight tube that situated in two lines of four tubes. The load area in this variant is completely taken up with the rocket launch box and associated equipment, leaving only the cab for the crew. The DSHK commander's machinegun is retained. When the MRL is fired, two stabilizers are lowered at the rear of the vehicle. This system is used only by China. It can be eligeble to reload in 5 to 8 minutes and with its digital ballistic computer. That system brings a high rate of accuracy. Its range is between 20km to 40 km.[31]

(http://knows.jongo.com/res/article/10504)

The WS-1/2 (Weishi) multiple launch rocket systems are a series that include WS-1, WS-1B, WS-1E and WS-2. The WeiShi (WS) family of the multiple launch rocket systems were developed by Sichuan Aerospace Industry Corporation in Chengdu, Sichuan Province. The WS-1 series weapon system did not enter PLA service and has not received any order from foreign customer. The WS-2 may finally see PLA service in the future.

The WS-1 was developed in 1980's by SCAIC. It has a length of 4.52 m, a diameter of 0.32 m and a launch weight of 520 kg. It is an unguided rocket with a 150 kg warhead

and a range of 80 km.[32] (Utku Çakırözer, "Turkey tests 'Project J' missile," *Jane's Missiles and Rockets*, 1 February 2002). It fires four 320mm caliber rockets. One of the largest unguided rockets worldwide, the launcher is mounted on a standard 6x6 truck as are the associated support vehicles. A digital computer system provides fire direction and positioning to give the system an accuracy of 1% of the range to the target. It was designed for attacking to military bases, airports, seaports\mass fleet, important hubs of communication, military industry bases, political and economic center, armor group, artillery and missile launch site, ground radar station and command & control center. Its range is 100 km. It can launch 40 to 60 rockets and it equipt with DZ-88B firing command truck, MF-4 rocket launch truck, QY-88 transport and loading truck, High-altitude meteorological radar[32].

(http://www.scaic.com.cn/indexE.asp?modelname=e_cpzxin00_nr_ws1)

The WS-1B multiple launch rocket system has been developed by SCAIC again but marketed by the China National Precision Machinery Corporation (CPMIEC) which based in Beijing. The system designed for filling the gap in firing range between a conventional self propelled artillery system and a surface to surface tactical missile. The system is operated in a defensive or offensive role for deployment against targets deep behind enemy lines including military bases, massed armoured divisions, missile launch site, airports and airstrips, harbours and military industrial bases. It has a 180 km range. With WS-1B some specifications are improved of WS-1. Maximum speed of rockets increased from Mach 3.6 to Mach 5, maximum altitude is increased from 30km to 60km, minimum fire range was been from 30km to 80km and maximum fire range increased 80km to 180km[33]. (http://www.army-technology.com/projects/ws1b)

The WS-1E is also developed with SCAIC. It is compatible with 122mm artillery rocket. It was same with Type 90 artillery rocket so it didn't produced and didn't enter the service.

The WS-2 is an advanced long range multiple launch rocket system(MLRS) with control system characterized by long firing range high firing accuracy, high maneuverability, strong firepower in salvo, fast operation response and convenient operation and maintenance, strong security. During the 2004 Zhuhai Air Show, SCAIC revealed its latest WS-2 multiple launch rocket system. The weapon is fitted with 6 box-shape launchers and fires 400mm rockets to a maximum range of 200km. The WS-2 is

fitted with a primitive cascade inertial terminal guidance to compensate the degraded accuracy cause by the long distance flight of the rocket[34].(SCAIC Web Site http://www.scaic.com.cn/indexE.asp?modelname=e_cpzxin00_nr_ws2)

The WM-80 multiple launch rocket system was developed by NORINCO based on the indigenous Type 83 273mm 4-tube artillery rocket system in 1990s. The WM-80 did not enter PLA service, possibly due to the introduction of the more capable A-100 artillery rocket system. It is produced for export. It is based on a modified 8x8 all-terrain truck with eight artillery tubes arranged in two lines of four tubes. The guided WM-80 system is designed as a battlefield support with backfire and bombardment weapon.[35](Roy Braybrook, Terry Gander, Armada International 1/2002) The WM-80 fires 273mm free rockets. Each rocket is 4,582mm long and weighs 505kg. When fired, the rockets carrying 150kg warhead reach a maximum height of 31,000m and out to maximum range of 80km. Time of flight is about 165 seconds. Minimum range is 34,000m and circular error probable (CEP) is quoted as between 12 percent of range. The rocket is stabilised by tail fins and high-speed spin generated by a spin motor. Also new version of WM-80's called Guardian 2 displayed in 2002 with some improvements.[36]

(http://www.missilethreat.com/missilesoftheworld/id.45/missile_detail.asp)

The A-100 is the 300mm, 10-tube multiple launch rocket system developed by Beijing-based China Academy of Launch Vehicle Technology (CALT, also known as 1st Space Academy) for the PLA ground forces. In many aspects, the system is very similar to the Russian Smerch 9K58 300mm rocket system. Its rocket is fitted with a primitive guidance system for greater accuracy. In 2002 the rocket system was spotted in service with the PLA 1st Artillery Division in Guangzhou Military Region, possibly for trial and evaluations.

3.3.2.7 Self-propelled tracked anti aircraft artilleries

PLA has three models of self-propelled tracked anti aircraft artilleries. These are: Type 80 (twin 57mm), Type 88 (twin 37mm), Type 95 (4x25mm).

Type 80 self-propelled anti-aircraft is basicly a copy from Soviet ZSU-57-2 anti aircraft artillery. It was made for the external market. Especially Iraq was one of the prefered

countries for this weapon export before the First Gulf War. Type 69-II tank chasis was used for the chasis and Type 59 towed 57mm artillery added on it. Its range is for air targets 8800m and for ground targets 12000m.

The Type 88, the PLA's first generation fully automatic self-propelled anti-aircraft artillery (SPAAA) system, features a Type 74 twin-37mm AAA, which can fire 360~380 rounds/min, mounted on a Type 69 MBT chassis. It didn't meet the expectations from this artillery at the exercises and because of this only a small number of these artilleries were manufactured. The turret is welded and fully enclosed with search radar and fire control equipment on top. The performance of the Type 88 was unsatisfactory, and the system never entered the serial production. It is designed for hitting helicopters and low attitude targets. It has much less electronic intelligence, command and control than the other modern artilleries with the same age of it. It has a cannon which fires the Type 76 high explosive round with tracer in single or burst mode from one or both barrels, with a muzzle velocity of 1,000m/s. The vehicle carries 1,000 rounds inside its turret. The cannon can also be used against ground targets and would be able to destroy most light armoured targets. The fire control includes the target search radar, optical sighting, electro-optical director, ballistic computing device, and identification of friend or foe (IFF) transmitter. The search radar has a detection range of 15km and altitude of 3,000m. Development activity subsequently focused on work on the new Type 90II[37].(http://www.sinodefence.com/army/antiaircraft/type88.asp)

Type 95 self-propelled tracked anti aircraft artillery has produced since 1990s and continued in 2000s. Type 95 is different from the other artilleries with its Italian SIDAM-25 technology base. The system is designed to provide short-range air defence, day/night and in all weather conditions. It can be added with four QW-2 short-range surface-to-air missiles (SAMs) to form a SPAAA(Self-Propelled Anti Aircraft Artillery) /SAM system that capable of engaging all threat targets including fixed-wing aircraft, helicopters, cruise missiles and unmanned aerial vehicles (UAVs) within the range of its SAM/AAA weapons. It is carried on a tracked chassis to keep the pace with main battle tanks and other armoured fighting vehicles. It has a periodically 600 to 800 rounds per minute per barrel rate of fire and it has a autoloader mechanism to load ammunitions easily and fastly. Even this artillery based on Italian SIDAM-25, its QW-2 missiles based on Russian Igla-1 (SA-16 Gimlet). It is effective for the altitude from 10 to

3,500m and slant ranges of 500 to 6,000m. In a typical target engagement the SAM would be used to engage targets at longer ranges, the 25mm cannon being used to engage aircraft and helicopters at ranges of up to 2,500m and an altitude of 2,000m. Type 95 is also fitted with a CLC-1 low altitude target search radar installed on the roof of the armament turret. The radar is working at S-band and has a detection range of 11km. The radar antenna is mounted on top of the turret. When the vehicle is travelling, the radar antenna can be folded down forwards to reduce the overall height of the system[38].(http://www.sinodefence.com/army/antiaircraft/type95.asp)

3.3.2.8 Self-propelled wheeled anti aircraft artilleries

LD-2000 is the only wheeled anti-aircraft artillery gun in PLA. It was developed from the Type 730 shipborne 7-barreled 30mm close-in weapon system. It was displayed for the first time in 2005 at IDEX for marketing to the external market. The LD-2000 is similar in its concept to the Israelian and U.S. truck-based air defence systems developed from the Raytheon 20mm Phalanx CIWS. The weapon system can be used stand along to provide point air defence for high-value strategic targets against aircraft and cruise missiles, or deployed as a part of a multi-layer air defence system comprising surface-to-air missiles (SAM) and anti-aircraft artillery weapons. The weapon also can be combined with short-range SAM to form a SAM/AAA air defence system. The artillery has a seven barrelled cannon like the other competitors as Dutch Golkeeper CIWS. The turret can eligable to remote where is rear the truck and two ammunition boxes each hold 500 rounds of ready-use ammunition (HEAT and Discarding Sabot Armoured Piercing).
A Type 347G tracking radar is mounted on the roof of the cannon turret, along with a day/thermal sighting system, which also incorporates a laser rangefinder.

4. MODERNIZATION IN GROUND FORCES

The process in modernization of ground forces was shaped by two factors. One of them is the experiences gained in past operations. The second factor is the the technological modernization and development which takes place in every force of PLA and goes paralelly with the economical development of China. PLA's ground forces modernization process actually started with the war on Jinman and Dengbu, Hainan and Yijiangshan. These wars enabled the Chinese commanders to evaluate what are the necessities of the modernization process. Especially defeats on Jinman and Dengbu and high loses on Hainan changed the point of view on the situaltin of China's ground forces.

The modernization process started first at the tactical level. The failure at the operations forced the Chinese army to change its tactical strategies. First they understood that they need amphibious units with the support of strong artillery fires and air bombardments. They noticed the importance of intelligence, as well as about the places of operations and the stationement of enemie's armies before the operations. Another tactical issue is the maneuvre capability of the forces. The maneuvre capability affects the operations duration. The longer the operation takes, the more it costs. In a road to this modernization, the first changement that has been seen is the increasment of the LST landing crafts. With this increasment it is possible to apply a surprise attack or coast rushs, with the use of a huge number of soldiers. After PLA had the LST, it decided to increase the numbers of the amphibious units paralelly with the increasment of LST ships. Especially Amphibious Light Tanks' (ALT) and Amphibious Armored Personel Carriers' (AAPC) numbers heavily increased.

PLA tactically used three kinds of attacks. "The Meeting Engagement is an encounter between two opposing forces on the move. The PLA views this as encountering a retreating hostile force while they are on the attack. The PLA force is expected to perform according to well-practised drills and Standard Operating Procedures. This is a reactive close quarter combat situation and the PLA believes the faster reacting commander wins the engagement. The PLA force can be expected to engage without pause or delay for planning or assessment purposes. The PLA strongly believes that this type of engagement is most common at the regimental level and below".

“The Hasty Attack is when an attacking PLA force comes upon an unexpected hostile static defence. The PLA commander is expected to immediately deploy his troops in the most advantageous position possible to launch an attack with minimal delay and minimal planning.”

“The Deliberate Attack is often used when the Hasty Attack fails. Careful planning and proper distribution of forces and resources characterize this Attack. Most often, artillery is employed to soften up the defence before PLA units attack.”[39] (LCol (Ret'd) W Yu, Tactical Impressions of the People's Liberation Army) PLA simply uses that kind of attacks but more complex version of them.

Brigade reforms are also necessary in this modernization process. It is evident that modernizations costs of 2.3 millions soldiers’ equipment are very high. According to PLA’s War Zone Campaigne doctrine, PLA should be limited, local war should be put under high-tech condition. According to this doctrine, new necessities in the brigades occured. PLA changed its thinking at the same time as the offensive and defensive brigades. In modern wars, the new concept of an in-depth strike was used. This concept includes the shifting between both sides as defensively and offensively and also with the modern weapons increasing this offensive and defensive capabilities. At last units should disperse at the battle and with an incresing destructiveness of long range units , enemy armored units should destroy.[40] (Xinhui, Brigade Reform and the Recent PLA Development)

Brigade trainings is also important at this modernization statue. At the trainings PLA get importance of tactical knowledge. Multimedia teaching, using communications equipments, heavy weapons and computer systems are another key points at the trainings. The training session takes around two years. After the trainings ,exercises are very useful for putting in to the practice.

Another topic which gained in the modernization process is importance of Special Forces in combats. Well trained Spacial Force units are also a good tool for pre-landing operations, sabotaging and disrupting defenders inland in addition to performing real time reconnaissance.

In PLA tempo and haste got very important in this actical modernization process. One the most important problems at the frontline conflict is reinforcements and heavy tanks fuel logistics. Heavy tanks are one of the expensive units in the army. But its fuel

consumption is very high level. During the operations fuel logistics is getting importance and it is necessary that logistic units should be fast.

After amphibious unit's getting importance PLA decided to convert some infantry units to Amphibious Mechanized Infantry Divisions (AMID) and some brigades are converted to Marine Brigades by the decision of CMC. This process increased the numbers of marines and amphibious units for getting more maneuvre capable.

PLA's fire support is an another thing which is necessary to be developed. Although China is the one of world's leading experts in artillery rocketry, these rockets are not useful for short range or close skirmishes. "The M9 and M11 Short Range Ballistic Missile (SRBM) are too valuable to be used as tactical support weapons. Even if the estimate of 450 is indeed correct; they will focus on larger targets. The cheaper WS-1B rockets have no mid-course correction capability. With a 180 km range, a very good uncorrected fin-and-spin stabilized MRL will scatter half of its rockets in an ellipse 4500 meters long and about 1500 meters wide, with the other 50% outside that ellipse. The other PLA long-rang MRL system, the A-100, does have course correction capability, however it is too small in numbers and its range is too short to have any impact on amphibious operation within the next 5 years."[41] (Xinhui, Amphibious Warfare Capabilities of the People's Liberation Army: An Assessment on Recent Modernizations)

PLA tried to cease this deficiency by raising the number of amphibious tanks and developing tank guns. Their updated and up-gunned Type 63A ALT's 105mm tank gun is fully stabilized and offers high hit probability even on the move, and can also fire a long range Anti-tank Guided Missiles (ATGM) from its gun tube. In this modernization process new weapons like 122mm Howitzer, 120mm Mortar and especially Kitolov 2M made by KBP Tula of Russian took their place. Howitzer is known as wide range ammunition , Mortar is known as it's effectiveness of a 152mm Artillery HE round and Kitolov 2M is known as laser guided high efficient projectiles. Infantries old RPG's gave their place to PF-89 and PF-98 fuel air- explosive rocket launchers.

Definitely the most important taken progress is at the command side in the PLA Ground Forces. War Zone commanding system took place during this modernization process. With this system Satellite Communications is being used in the smallest units.

Every unit takes its orders from the Headquarters by their own command and at the same time Headquarters watches the skirmish from a satellite.

5. AIR FORCE OF PLA

The People's Liberation Army's Air (PLAAF) is organized into air corps, ground-to-air missile corps, anti-aircraft artillery corps, radar corps, parachute corps and other professional forces. Before the 1985 reorganization, the Air Force reportedly had four branches: air defense, ground attack, bombing, and independent air regiments. The air corps consists of fighter plane units, bomber units, attack plane units, reconnaissance plane units and air transport units. As of 1997 the PLA Air Force had a total strength of approximately 370,000, organized into 45 air divisions. Among them are five bomber divisions, 32 fighter divisions, six attack divisions, two transport divisions, 17 air defense divisions [with 220,000 troops], and one airborne army comprising three airborne divisions with 20,000 airborne troops[42]. (Federation Of American Scientists http://www.fas.org/nuke/guide/china/agency/plaaf-orbat.htm) PLAAF has 470.000 airmen , 2.556 jet fighters, 400 ground attack jets in 2004. Its commander is General Shen Kuo Jen. We can say that PLAAF changing its skin from undeveloped , obsolescent huge numbers of plane to modern , high-tech air force. While new aircraft like the J-10, J-11 (Su-27), Su-30 and SU-33 are gradually introduced into the force, older aircraft like the J-7 and J-8 are being modified with better avionics and air-to-air missiles to bridge the gap. The new combat aircraft force of the 21st century will be controlled by airborne early warning aircraft, refueled by tankers, and supported by electronic countermeasure and intelligence collection aircraft. The PLAAF is forging ahead with advanced tactics and logistics techniques for its newer aircraft, while sustaining the operational capabilities of its older inventory. In addition to its combat aircraft, the PLAAF is improving its surface-to-air missile force and mobility for its elite airborne corps. In ten years, the PLAAF will be a much smaller force, but will have greater range and lethality than the PLAAF of the 1990s[43]. (Kenneth W. Allen, PLA Air Force Operation And Modernization)

Table 5.4 – Estimates known PLAAF multi-role combat aircraft

ESTIMATES FOR KNOWN PLAAF MULTI-ROLE COMBAT AIRCRAFT			
	2002	**2005**	**2010-2020**
Sukhoi Su-30MKK	38	80+	200
Chengdu J-10	6	30	500
Xian JH-7	15	40	200
Shenyang J-8IIC/H		50-70	100
Sukhoi Su-27/ J-11	80-90	158	100
"XXJ" or J-12			50
ESTIMATED TOTALS	**139-149**	**358-378**	**1150**

The official PLAAF history states that it has shot down 1,474 and damaged 2,344 aircraft of all types. Analysis of these figures shows that PLAAF aircraft have shot down or damaged only about 200 aircraft during air-to-air combat, most of which occurred during the Korean War. The PLAAF's antiaircraft artillery (AAA) and surface-to-air missiles (SAM) shot down or damaged the remaining 3,600 aircraft. The PLAAF's SAM forces are particularly proud of shooting down five Nationalist Air Force U-2 reconnaissance planes between 1963 and 1967. The last PLAAF combat took place in October 1987, when a SAM shot down a Vietnamese MiG-21 that had crossed the border.

6. MODERNIZATION IN PLAAF

If we look at the history of modernisation process in PLAAF, we come to the conclusion that it started with the Korean War. With this war China gained the opportunity to modernisize its army. To offset of the North Korean Army's defiet, the Soviets helped the PLAAF to expand. By the end of the war it had 2000 aircraft units, 1000 of them were jets. the Soviets also rebuilded two Japanese aircraft production plants in Harbin and Shenzhen for the Chineese, plants which the Soviets had dismantled following World War Two.

Today in PLAAF modernisation is a neverending process with the starting of a new doctrine in 1975. This doctrine had basicly taken over the training technics. After 1988, buying new weapons was added to this ideology. And lately researching and developing in its own defense industry took its place between these two ideas. Today PLAAF uses all these three ideologies. The main idea in modernisation is to enable the conduct of all-weather offensive and defensive operations in a modern high-technology environment. It is not only a technological development in the weapons or planes. It is also containing development in tactics, equipments, logistics, training and maintanence. The PLAAF has 26 Air Force academies and schools carrying out various facets of training. Entry to these institutions is on a selection basis. Pilot training is carried out in three phrases: undergraduate training, transition training and operational unit training. Once in an operational unit a typical fighter pilot does 100-110 hours flying per year, an A-5 ground attack pilot-150 hours/year. Apparently pilots in operational units do not get enough flying practice to maintain a high state of readiness. As a consequence, pilots do not have adequate opportunity to practice new tactics demanded by advanced aircraft.

A way to reach the goal is catching the highest technology and enabling to conduct all-weather offensive and defensive operations in a high technology equipment. Developing the national defense industry is another key point in modernization. To catch this goal today’s Chinese generals are considering future strategic plans as highly important. The most important reason for developing its own defense industry is the difficulty in obtaining hardware from foreign industries weapons, such as Russian SU-27s, SU-30s, IL-76s and S-300s.

We can say that PLAAF's armament moves paralelly with the PLA. Conflict between PRC and Taiwan is also one of the effects of this armament process. This conflict revealed the necessity of buying new weapons from other countries. In accordance with this necessity, PLAAF bought 150 F-16 fighters from USA, 60 Mirage 2000-5s from France. The other air vehicles which are stil existing in the PLAAF are Russian SU-27 fighters, Il-76 transports and S-300 SAMs. With this transporting vehicles PLAAF's air troops can make operation in a long range. They had ordered their first Russian Israel associated made Il-76 airborne warning system. On the other hand they get their air defense industry faster and produced their first Chinese made B-6 airborne refueling aircraft for J-8II fighters. In producing this refueling plane China has also acquired Sergeant Fletcher aerial refueling drogue systems from Iran. An Israeli firm Bedek Aviation is installing these on board the Xian B/H - 6 D bomber/refueling tankers.[44] (Edmond Dantes, The PLA Air Force Build Up: An Appraisal, Asian Defence Journal 11/94)

With this changes in PLAAF, it gets a new skin from extremely defensive types of force to the offensive type. This evolution had its continuum in the modern missile technology as well. The missiles which are on use are PGM (Precision Guided Misilse) and long range cruise missiles that taken from Russia. It seems to be good support for naval and ground forces during the operations.

PLAAF has focused on reseach and development at the same time while they are importing modern weapons. PLAAF is proud of new planes (like J-10, J-11 and also SU-30, SU-33), technological training grounds and similation rooms for training pilots for night flights, imaginary operation campaigns. PLAAF created a powerful and eligable to flight at all weather conditions filo with these planes with the modernizined J-7 and J-8 fighters. Today the J-10 is using the engine in bases of a Russian AL-31FN. China has purchased 150 AL-31FNs and in the recent past Russian sources have spoken of their expectation that China would purchase another 200 or more. The final number purchased will depend on how quickly China's WS-10A Taihang turbofan engine can complete final testing and reach sufficient production to contribute to the J-10 program.

China's quest for a modern high performance turbofan combat aircraft engine has lasted as long as the J-10's story. While WS-10A is given a lower profile in reporting about the PLA, is perhaps a more important accomplishment than the J-10, inasmuch as this

new engine enables multiple combat aircraft, enables the development of modern turbofans for airliner and cargo transports and its establishes a critical knowledge base for developing 5th generation fighters engines.[45] (Richard Fisher, Jr. , China's J-10 Jet Fighter: How Much Do We Know?)

Chinese new bomber and fighter projects are still continuing. In January 2007, new Xian H-6 Bomber Plane's pictures were publicated in the Internet. It was the copy of Russian Tupolev TU-16. According to the pictures it seems that it is upgraded and it has two salient features including larger engine air intakes, indicative of a larger or even a new, more powerful engine, and six wing-mounted pylons. These are initially carrying new cruise missiles, which very likely are new Chinese-designed Land Attack Cruise Missiles (LACMs), but in the future may also new precision guided munitions (PGMs) can be carried. It is made as a competitor of the American B-52.

Figure 6.3 - New Xian H-6 Bomber Plane

It's development story starts with the failure of purchasing Russian Tu-22M3 Backfire. After that China decided to produce their own bombers indigenously made. They took Russian Tupelov 16 as the basis and developed it. After China entered the research phase, it helped to develop these bombers and fighters.

Now China approaches to purchase New Tupelov TU-22M3 bombers and at the same time it will produce new H-6 Bombers. Also China will start new Supersonic Bomber and Supersonic Stealth Fighter projects but there are rumours that they have already started.[46] (Richard Fischer, Jr, China's New Bomber Published on 7 February 2007)

Figure 6.4 – New Supersonic Bomber

Figure 6.5 – New Supersonic Stealth Fighter

Figure 6.6 – New Supersonic Stealth Bomber

This modernisation process is not only limited to plane industry. Also radar and satellite areas is very important for PLAAF. For the PLAAF and the missile services an important information source critical for targeting will be a constellation of new imaging and radar satellites. Recent reports indicate that the PLA may be planning on fielding 16 new reconnaissance satellites: 8 imaging and 8 radar satellites.[47] (Reports in 2001 noted the PRC would eventually launch 4 imaging and 4 radar satellites, but a new report says 8 more will be launched, indicating a similar division of 4 more imaging and 4 more radar satellites, see, Craig Covault, "Chinese Plan Aggressive Satellite

Development," *Aviation Week and Space Technology,* November 12, 2001, p. 56.) The new radar satellites, which are not inhibited by cloud cover, appear to feature synthetic aperture radar (SAR) marketed by Russian NPO Machinostroyenia[48] (Canada's RADARSAT, Ibid. China may also be developing radar satellites that use a planar antenna similar to that used) which can detect objects less than one meter in length. The planned constellation would allow for four daily revisits by each satellite type.

Since 1999 the Chinese aviation industry took more speed in its research and development. With the help of Russia and Israel, PRC gained technology and developed it with its own investments. But today in PRC there is a debate on the implamentation of this technology to the PLAAF. The Chinese journals saysthat this development continiues only at the unit level and is not capable to be used in the whole army. Most of the weapons are at the test level. Also there is a connection problem between this industries and army and between sections of internal side of army. Another problem was the fact that many ideas did not come into life. These new ideas or inventions weren't good enough already in the test phase and they staed on paper. PLAAF saw the main problem is this implementation process.

PLAAF tried to find some solutions for this problem. As the first step PLAAF created a research institute named PLAAF Command College. It was destinated for theorical solitions of these aspects, working as a consultation department for PLAAF Headquarter. After the aproval of Headquarter's for these suggestions, the second step was undertaken, which was the test process. It started firstly at the unit level than, in case of success, it continiued with simulation tests in different types of alternative conditions. After these phases, there were three further possible choices: acception, modification or rejection. After acceptation, the next step is tests at the unit level. And PLAAF is starting to pass from unit level to a wider application field. Thanks to this process any eventual mistakes are found already at the bottom level. Moreover, new necessities can be clearly seen during this test process. It is opening new ways of development, while trying other ones at the same time.

But there also are some negative points of this process. First, tests at each level and later the modification of test object at the force-wide level takes too much time. If there was a failure at some level, there are modifications taking place and the process starts from the beginning. Another negative point is the loss of harmony between forces. For

example: if there is a tactical development in the PLAAF, it causes tactical changes. It should also be changed in all the forces. Especially the logistic department often feels these negative efects.

7. PLAAF RAPID-REACTION FORCE

The year 1985 was a time of regional instability, territorial disputes, ethnic and religion-based conflicts, arms proliferation and many potential conflicts. Such unstable and war-inducing regional factors also existed in China's peripheral areas, such as Xinjiang, Tibet, Taiwan, and the South China Sea. In order to sustain as long as possible a peaceful period and to prevent effectively or win a regional conflict, military operations in the peaceful era should be designed to enhance two military capabilities: first, the capability of modern strategic weapon systems to exert effective deterrence; and second, to develop highly competitive, high-technology-based rapid reaction forces (RRF) (*kuaisu fanyin budui*) to cope with future small-scale, highly intensive regional combat and military operations. Under these two major principles of military construction, the CMC has given orders to learn the lessons of Western rapid deployment forces as the basis of developing PLA's RRF. The PLA began its RRF development in the early 1980s. Since then, RRFs have been set up in PLA Army, Air Force, and Navy units, as well as Army special forces, Army aviation, Marine Corps, and airborne units.[49] (Andrew N. D. Yang and Col. Milton Wen-Chung Liao, PLA Rapid Reaction Forces: Concept, Training And Preliminary Assessments) PLAAF Rapid-Reaction Force is one of these forces.

7.1 PLAAF AIRBORNE TROOPS

The 15th Airborne Corps of the PLAAF is composed of three airborne brigades. The 43rd brigade, stationed in Kaifeng, Henan Province, is attached to the Jinan MR. The 44th brigade, stationed in Yinshan, Hubei Province, is attached to the Lanzhou MR. The 45th brigade, stationed in Huangpi, Hubei Province, is also attached to the Lanzhou MR. The airborne troops are accompanied by the 13th transport division of the PLAAF. The airborne troops are directly under Central Millitary Commission (CMC) control. Strategically, the airborne troops are considered to be a reserve force, yet in tactical terms the airborne troops are deployed as an advance force. It could be reconstituted as an air mobile rapid attack force. The airlift capability of the PLAAF is composed of 10 IL-76 heavy lift, Yun-8, and Yun-7 transports, as well as Mi-17, Mi-8, S-70c, Z-8, and

Z-9 helicopters. Z-9 helicopters equipped with imaging infrared (IIR) sensors and artillery units use data links to provide near-real time fire support. This follows the Russian experience in Chechnya where Russian forces have used attack and other helicopters equipped with IIR seekers and real time data links to identify Chechen insurgent positions. In terms of weapon systems, the airborne 53 troops are equipped with BMPs [Russian armored personnel carriers], Hongjian-8 anti-tank missiles, Hong Yin 5A anti-air missiles, and Russian-made flame-throwers. In recent years, the airborne troops have developed several technical combat units, including reconnaissance, communication, artillery, and anti-chemical units.

Figure 7.7 – PLAAF Air Bases

In the image 2, we can see the air bases of PLAAF. It shows the PLAAF's power clearly.

8. PEOPLE'S LIBERATION ARMY – NAVAL AIR FORCE (PLANAF)

PLANAF was established on the 23rd April 1949. It is formed of three fleets: Beihai, Donghai and Nanhai which is known as North Sea Fleet, South Sea Fleet and East Sea Fleet.

Within these fleets Naval Aviation is divided in 10 divisions and each division includes 3 regiments. Also there are some regiments which support these fleets during operations.

PLANAF is mainly consisting of J7EH and J8D with newly arriving J7 fighter attack aircraft. But a small number of J6 and J5 fighters still exists. At the bomber force section H6 and H5 planes are still being used, but there are some talks about delivering SU-30MK2 and SU-33K planes.

Also there is a helicopter force for Naval Operations which exists on Naval ships.

During the last ten years it was obvious that Chinese military capability is slowly rising. China was modernizing its forces and paralelly increasing its defense spendings, changing its very low technology. Especially the China – Taiwan conflict, as well as Sino-Russian boundry and the Spratry Islands conflict with Vietnam affected this armament process.

The armament process was followed by technological research and development. According to Zhang Yunchuan, the Minister of the State Commission of Science, Technology and Industry for National Defense, China completed a series of tests to finalize the designs of new weapons in January 2007. China made a technology transfer with the construction of J-6 and J-7 fighters (in basicly they are known as MiG-19 and MiG-21) factory in Shenyang. The main idea was to produce these planes in cooperation with Russia and develope them with own resources. Especially, with Jian 10 fighter plane Chinese defense industry caught a significant acceleration in technical innovation and weapon development in 2006. China is using new Xiaolong fighters and advanced Lieying and Shanying series trainer aircraft are in everyday for trainee[50].

(China Daily 01.08.2006, http://www.chinadaily.com.cn/china/2006-11/01/content_721457.htm) Chinese multi-model advanced missile systems were displayed at the 2006 Airshow China in Zhuhai.

In his interview Mr. Yunchuan said that they are planning to summarize the year 2006 and they will continue this research and development in 2007. It was the leading for more than 200 company in all defense industry of PRC including industrial groups like nucleer, aviation, shipping, vehicle, electronics and new material fields to plan the growth of the military industy. It was helpful for coordinating this firms and creating coordination between thir each other.

The weapons on Airshow 2006 included precision-guided bombs and long-range striking systems hailed by military experts as symbols that the People's Liberation Army has entered an era of precision attack. China displayed with this Airshow 2006 its new air, naval and surface to surface missiles. Especially new LT-2 500 kilogram laser guided bombs and LS-6 glide-guided bomb, which are developed by the China Aviation Industry Corporation I, signature of the development in the Chinese defense industry.

With the bombs of new FT-1 and FT-3 PLA is planning to be more effective in short distance air raids and blockage or distrupting enemy's air defense and naval ships. In tests these missiles got a high pecentage of hits. The China Aerospace Science and Industry Coporation (CASIC) is the producer of these missiles. It displayed 20 more missiles.

There are also reports of Israel having illegally transferred sensitive US aviation technology to China. China is developing a fighter called the F10 that is reportedly based on the Lavi - A joint Israeli-US fighter jet project that was terminated in 1987.[51] (Barry Schweid, Did Israel sell China U.S. Jet Technology, , The Washington Times, 5 January 1995) The most important Israeli developed equipment acquired by the PLA is the LAVI's EI/M-2034 multi-mode fire control radar developed by ELTA. This radar is planned to be installed on a new derivative of the Shenyang J-8-2 Finback fighter currently under development. In addition, ELTA is helping the PRC develop an AEW version of the Yun-8 turboprop by a retrofit involving conformal active phased array radars.

9. NUCLEAR FORCE OF PLA

Chinese nuclear forces have an important situation in PLA. Basicly China is performing no-first-use policy for the nuclear weapons. It is estimated that there are 400 nuclear warheads in the Chinese operational arsenal. Of these, 20 or 30 are deployed on ICBMs and that another 200-250 are deployed (or are available to be deployed) on aircraft, missiles, and submarines with regional range. The 100-150 remaining nuclear warheads are believed to be kept in reserve. Some may be planned for "tactical" uses, for example, on shorter-range combat aircraft.[52] (Institute For Defense & Disarmament Studies http://www.idds.org/issNucForcesP5.html*)*

9.1 LAND BASED NUCLEAR FORCE

It contains from long range Intercontinantel Balistic Missiles (ICBMs).

DF-3: In November 1961 China started to work on a missile that would be capable to hit United States. In the project, this missile range has been projected for 10.000 km. It would be put in work with liquid oxygen and kerosene propellants, which were used in the Soviet R-7 and the US Atlas. While China worked on this missile project, there was a big handicap- the big economical crisis. In 1963 China cancelled this project and transfered the accumulated knowledge gained from this project to DF-3MRBM program[53] (John Wilson Lewis and Hua Di , "China's Ballistic Missile Programs Technologies, Strategies, Goals", International Security, Fall 1992 [vol. 17 no. 2])

DF-5: This Dong Feng 5 missile's production process began in September 1971 and continued untill late 1974. In 1975 the test level started with the FB-1 which was the space launch version of DF-5. Test level concluded in December 1976 with a capability of target USSR and USA. It was suitable for using four first-stage gimballed engines and one second-stage engine, all of which burn N2O4/UDMH.

Until February 1980 DF-5 was tested 5 times. In March 1980 China made full range test of DF-5. At this exercises PLA got success of 1of 2 with a range of 6000 miles to the Gilbert Islands, the Solomons, Fiji, and the New Hebrides Islands where was limited.

In the first project in 1971 DF-5 was eligable to hit western coasts of USA with a range of 10.000 – 12.000 km. From 1971 to 1983 China developed this missile and officially they declared DF-5A as new version of DF-5's with a range of 13.000km.

For many years almost all sources credited China as having only four DF-5s deployed in silos, including the authoritative 1992 treatement by John Wilson Lewis and Hua Di, which asserted that as of 1992 only four DF-5 missiles on alert. However, more recent estimates suggest that some 8-11 were deployed as of 1995, and that at least 13 missiles were deployed at the end of 1997. According to the National Air Intelligence Center, as of 1999 the deployed DF-5 force consisted of "fewer than 25" missiles. As of early 1999 the total deployed DF-5 force was generally estimated at about 20 missiles. By mid-2000 some sources suggested that the total force was as many as 24 deployed missiles.[54] (Bill Gertz and Rowan Scarborough ,"Inside The Ring", Washington Times July 28, 2000)

In 1983, China added multiple independent reentry vehicles (MIRV) warhead to this missile for increasing hit rate of this missile.

DF-6: Carrier Research Academy offered a plan for new 4 types of missiles which were supposed to be finished in 8 years. On 31 December 1965, this project was enlarged with the fifth missile and a fractional orbital bombardment system (FOBS). After the finishing of the first section of the project, they discovered that because of the retro-rockets system, missile was getting slower and there were some intelligence reports that Soviet Union is developing their FOBS program. After this report China decided to add FOBS capability to DF-6 missile and transfer some properties of DF-5 to DF-6. But because of technical problems they cancelled this program.

DF-22: In October 1973, China started a project of 2 stage storable liquid propellant missile capable of delivering a 700kg payload over 8,000km under a name of DF-14. At the beginning the project DF-14 was thought as a mobilize and rapid targeting fire control system. In September 1975 China decided to delay this project because of an important need of finishing DF-4 and DF-5 missiles. In 31 August 1978 this project has returned under the name DF-22. In 1984 the Central Millitary Commission decided to change the propellant from storable liquid to solid rocketry and it makes break at the development of this project. In 1993 China invented their solid rocketry technology and in 1995 DF-22 project was cancelled with the end of storable liquid technology.

DF-31: Dong Feng 31 is the newest technology of the Chinese rocket industry and constitutes the main card in the Chinese nuclear missile strategy. It is developed by Chinese Aerospace Corporation. It seems that it will close the gap in the rocket industry between PRC and USA – Russia technology. The system is a solid-fueled, three-stage mobile missile with a range of 8000 km carrying a 700 kg, one-megaton warhead. The DF-31 limited-range ICBM will give China a major strike capability that will be difficult to counterattack at any stage of its operation, from pre-flight mobile operations through terminal flight phases. JL-2 is also the same variation of this missile which used in the sea based.

In 1991 the CMC ordered to develop this missile and started the tests soon. On the paper the plan was comprising the getting full service in 1996 and deployment in 2002 or 2003. In April 1992 the first test took place and resulted with broken dreams because of explosition after the lunch. The problem was the low quality of components and this caused the failure. The second test failed also for the same reasons. The third test was undertaken on the 10th November 1995 and 10th January 1996 and it failed because of atmosferic reasons. The fourth test on the 28th December 1996 was successful and opened a new era for Chinese rocket industry. These tests continued with the simulations until the end of 1999 and with the Belarussian transporter elector launcher it got the ability of mobilize. It opened the road to the DF-41.

DF-31A: It is the modified version of DF-31 with the range of 7.000 miles (11.270km). China still producing DF-31A and USA intelligence community's guess with the new type of DF-5A PRC will have got around 75 – 100 warheads in 2015.[55] (Hans M. Kristensen , Robert S. Norris, Matthew G. McKinzie, Chinese Nuclear Forces And U.S. Nuclear War Planning)

Figure 9.8 – DF 31 A Missile

DF-41: DF-41 is the upgraded version of DF-31. It is a little bigger in its size than DF-31. In spite of its big size, it is stil eligable to be settled on submarines. Its range is over 12000 km. It was tested in simulations and got success. DF-41 carries several warheads which are very easy to be transported from land to land. This missile's preparing to lunch is taking at least 30-60 minutes for fullfill fuel and it needs around 2 hours to be ready to launch. With its mobile launch capability it is eye-catching among the other missiles of PLA. The specialist estimate that DF-41 will be delivered the new project of 2d Artillery which will be finished in 2010.[56] (Pamela Pun, New Chinese ICBM Passes Test Simulations - Can Hit Most Of US)

Table 9.5 – Long Range Missile's Specifications

	DF-3	DF-5	DF-6	DF-22	DF-31	DF-41
Basing		□ Luoning □ Wuzhai □ Xuanhua □ Tongdao			□ Tai-Hang □ Wuzhai	
Configuration		Three Stages			Three Stage	Three Stage
Length [meters]		32.6			10+	~15 ?
Diameter [meters]		3.35			2.0	2.0

Mass [kilograms]		183,000			20,000+	30,000 ?
Propellant		Storable liquid		Storable liquid	Solid	Solid
Guidance		Inertial			Inertial	Inertial
First Flight		1971			29 April 1992	
IOC	Cancelled	1981	Cancelled		2000	2010 ?
Deployment		Silo			Mobile	Silo or Mobile
Range (km)	10.000	12,000 - 15,000	15,000	8.000	3,000 - 8,000	10,000 - 12,000
Re-entry Vehicle Mass (kg)		3,000 - 3,200			700 kg	800-1,000 ?
Warhead Yield		2 MT			1 @ 0.35 - 1.0 MT or 3 @ 50-100 KT	1 @ 0.35 - 1.0 MT or 3-6 @ 50-100 KT
CEP		500 - 3,500 meters			300-500	700 - 800 ?
Launch Preparation Time		30-60 minutes			10-15 minutes	3-5 minutes

10. NAVAL FORCES

The development of People Liberation Army Navy Forces (PLAN) was largely effected by the geopolitical situation of PRC. Becouse of diffuculties in protecting its sea boarders China was obliged to provide large numbers of aircraft and patrol boats armed with anti-ship cruise missiles, which provided a formidable coastal defense perimeter. Although PLAN has numorously big navy forces, it was attracting attetion with its old and overwhelmed units before.

Table 10.6 - PLA Navy Facilities / PLAN Major Surface Ships February 2004 By Sidney Trevethan

Type	Class	Displacement	1985	2000	2010
Destroyers			**15**	**21**	**27-29**
Type 956	Sovremenny	8,480	-	1	4
Type 054	Luhai	6,600	-	1	5
Type 052	Luhu	5,700	-	2	2
Type 051	Luda	3,960	11	17	~ 11
Type 07	Anshan	2,040	4	-	-
Frigates			**31**	**36**	**34-43**
Type 054	Maanshan		-	-	8
Type 059	Jiangwei III	3,000	-	-	3
Type 057	Jiangwei II	2,250	-	2	6-8
Type 055	Jiangwei	2,250	-	5	4
Type 053	Jianghu	1,925	20	28	~ 25
Type 053K	Jiangdong	1,925	2	1	-
Type 065	Jiangnan	1,400	5	-	-
Type 01	Chengdu	1,510	4	-	-

Guided Missile Boats			**100**	**83**	**55**
Type 520T	Houjian	520	-	4	4
Type 343M	Houxin	478	-	14	~36
Type 021	Huangfeng	205	100	65	~25

Submarines			**117**	**66**	**62**
Type 094	NEWCON SSBN	8,000	-	-	? 8
Type 092	Xia SSBN	6,500	1	1	-
Type 093	NEWCON SSN	6,500	-	-	4
Type 091	Han SSN	5,500	3	5	5
	Kilo	2,325	-	2	4
Type 039	Song	2,250	-	2	5
Type 035	Ming	2,100	2	16	20
Type 033	Romeo	1,710	90	38	15
Type 03	Whiskey	1,350	20	-	-
Type 031	Golf SSB	2,700	1	1	-
	Wuhan	2,100	-	1	1
Amphibious Warfare			**4**	**15**	**29**
Type 074	Yuting	4,800	-	6	20
Type 072	Yukan	4,170	3	7	7
	Yudeng	1,850	-	1	1
Type 073	Yudao	1,460	1	1	1

10.1 MODERNIZATION PROCESS IN PLAN

PLAN modernization process started with the Mao's speech "We must build a powerful navy against aggression by imperialism" in 1949. In 1950, PLAN military academy was established, with the help of the Soviets. In September of the same year PLA's Navy was created by consolidating regional naval force. It consisted of a motley collection of ships and boats acquired from the Guomindang forces two years earlier than PLANAF. With Soviet assistance, the navy was reorganized in 1954 and 1955 into the North Sea Fleet, East Sea Fleet, and South Sea Fleet, and a corps of admirals and other naval officers was established from the ranks of the ground forces. Soviet specialists were at the front side at this setting up process and Soviets began to procure modern ships. The Chinese Navy imported equipment and technology from the Soviet Union when it was first established in the 1950s and developed the ability to make naval equipment with Chinese parts in a short time. In shipbuilding the Soviets first assisted the Chinese, then the Chinese copied Soviet designs without assistance, and finally the Chinese produced vessels of their own designs.

In the late of 1950's and 1960's China decided to build its own ships and during the Cultural Revolution a big number of commander squads were purged.

In the 1980s the Navy was developed into a regional naval power with some green-water capabilities. Naval construction continued at a level somewhat below the 1970's rate. Modernization efforts encompassed higher educational and technical standards for personnel; reformulation of the traditional coastal defense doctrine and force structure in favor of more blue-water operations; and training in naval combined-arms operations involving submarine, surface, naval aviation, and coastal defense forces. In the late 1980s, major deficiencies reportedly remained in antisubmarine warfare, mine warfare, naval electronics (including electronic countermeasures equipment), and naval aviation capabilities. China's 1,500-kilometer coastline was protected by more than 100 diesel-powered Romeo - and Whiskey -class submarines, which could remain at sea only a limited time. Inside this protective ring and within range of shore-based aircraft were destroyers and frigates mounting Styx antiship missiles, depth-charge projectors, and guns up to 130mm. Any invader penetrating the destroyer and frigate protection would

be swarmed by almost 900 fast-attack craft. Stormy weather could limit the range of these small boats, however, and curtail air support.

In the middle of 1980's the development of second generation warships was included in the Seventh and Eighth Five-Year Plans as a key area of endeavor in the development of new weapons and equipment. With this decision China gave its concentration to invent or provide new technologies. In a direction of China's modernization plan, PLAN choosed the way to regional active defensive warfare with the support of increasing Chinese economy.

The PLAN currently numbers approximately 260,000 personnel, with over 50 destroyers and frigates, about 60 diesel and six Han- and Xia-class submarines, and nearly 50 landing ships. This force is complemented by several hundred auxiliary and smaller patrol vessels, as well as a naval air arm of over 500, mostly obsolescent, fixed-winged aircraft and some 30 helicopters.

The PLAN's modernization program has continued in three ways. First, PLAN leadership has focused on decommissioning the large numbers of outdated surface combatants, submarines, and aircraft acquired during the first 30 years of the country's existence. Second, the PLAN has aggressively sought advanced Western technology for improving its warfighting capability and the sustainability of its ships and aircraft. Third, the Chinese Navy has focused on improving training for both its officer and enlisted ranks and, in consonance with overarching PLA programs, developing a cadre of experienced noncommissioned officers[57].

(http://www.navyleague.org/seapower/chinas_navy_today.htm)

In last ten years PLAN is trying to retire old units and make the filo more younger and modern. PLA getting stronger of its naval forces in both side with producing its own weapons or buying new weapons from other countries.

Russia delivered a number of warships in February of 2005. It is including seven Project 636 (Kilo class) diesel electric submarines and a Project 956EM (Sovremenny class) missile destroyer. China made an agreement with Russia for purchasing two Project 956EM destroyer and eight Project 636 submarines. In the middle of 2006, China delivered one from both of them. This deal costs 1.4 billion US dollars for destroyers and 2 billion US dollars for submarines[58].

(http://www.sinodefence.com/news/2005/news05-12-29.asp)

The other modernization key element is the deployment of large numbers of theater-range ballistic missiles (TBMs)11 capable of attacking targets in Taiwan or other regional locations, such as Japan.12 Among these are CSS-6 and CSS-7 short-range ballistic missiles (SRBMs) deployed in locations across from Taiwan. DOD states that China as of 2005 has deployed 650 to 730 CSS-6 and CSS-7 TBMs, and that this total is increasing at a rate of about 100 missiles per year. It is a big possibility that China may work on TBMs equipped with maneuverable reentry vehicles (MaRVs).[59] (Ronald O'Rourke , China Naval Modernization: Implications for U.S. Navy Capabilities – Background and Issue For Congress ,CRS Report For Congress, 18 November 2005) According to one press report, "navy officials project [that such missiles] could be capable of targeting US warships from sometime around 2015."[60] (Yihong Chang and Andrew Koch , "Is China Building A Carrier?", Jane's Defense Weekly, 17.08.2005)

Land Attack Cruise Missiles (LACM) is providing another point at modernization. China is developing its LACM which can eligable to hit Taiwan or Japan. These LACMs can launch from submarines or destroyers also.

Today, PLAN modernization continues with aircraft carrier section. China put a goal to construct its own aircraft carrier after the failure of the buying aircraft carrier from USA. According to Washington Times Journal "China will add aircraft carriers production plan to the new five-year development plan". Richard Halloran giving five reason for China's producing its own aircraft carrier. These reasons are;

a. International prestige: Adm. Keating, Mr. Erickson and Mr. Wilson noted that Chinese often say "a nation cannot become a great power without having an aircraft carrier."
b. Power projection: China has proclaimed that the waters and islands of the South China Sea are Chinese territory. Southeast Asians dispute those claims but a carrier would back China's contention.
c. Defending lifelines: Increasing amounts of oil for China's industry pass through the Straits of Malacca between the Indian Ocean and the South China Sea. A carrier could help defend them.
d. Regional rivalry: India and Japan, which Chinese leaders see as political competitors, are well ahead of China in sea power. A carrier would help to close that gap.

e. Relief operations: China was humiliated after the 2004 tsunami in the Indian Ocean drew swift responses from the United States, Japan, and other nations with air and naval assets, while China could do little to help.[61] (Richard Halloran , China Intent On Aircraft Carrier Goal, Washington Times, 28 May 2007)

China's effort for producing this aircraft carrier is continueing on the other side. China bought retired ex-Soviet Navy Kuznetsov class aircraft carrier Varyag for US$20 million. The firm that bought it is a tourism firm and they declared China will use this aircraft carrier for tourist attraction. But China bought the technology of constructing an aircraft carrier with this Varyag. Varyag has been in Dalian Shipyard since 2002.

11. CHINESE DEFENSE SPENDINGS

Chinese officials estimated for the year 2006 a 17% increase in the aggregate defense industry over 2005 and they are expecting 25% rise in total revenue. The USA's defense department officers accused China of expanding spendings to distrupt US space programs. According to US officers "China's official defense budget for this year is about $45 billion (EUR33.8 billion), but the "real" budget is between $85 billion (EUR63.9 billion) and $125 billion (EUR95 billion)". In 2003, he said, the most recent year of published spending estimates, China's official budget figure for military spending was$22.4 billion (EUR16.8 billion) while estimates of actual spending ranged from $30.6 billion (EUR23 billion) to $141 billion (EUR106.1 billion), the U.S. Defense Officer Mr. Lawless said The

China's military spendings official numbers are shown at the table 5.[62] (http://www.huliq.com/24611/u-s-defense-department-says-chinas-military-budget-understated)

Table 11.7 - White Paper on National Defense issued by Chinese Government and other government publications.

Budget Year	RMB Yuan (billion)	=$USD (billion)	% of total national expense	% Increase over last yr
1991	32.50	3.92		
1992	37.00	4.46		13.8
1993	42.70	5.14		15.4
1994	55.00	6.63		28.8
1995	63.00	7.59		14.5
1996				
1997				
1998	93.47	11.26	8.66	
1999	107.67	12.97	8.20	15.2
2000	121.29	14.61	8.29	12.6

2001	141.04	17.00	8.30	16.2
2002	166.00	20.00		17.6
2003				
2004	200.00	24.00	7.7	
2005			7.3	
2006	297.93		7.4	
2007	350.92	44.94	7.5	17.8

There are some circumstances affecting Chinese defense budget. The development level and the growth of the PRC's GDP cause increasing at the defense budget. At the same time it is parallel with the national budget. The increase or decrease in the GDP or national economy's welfare directly affects defense budget. Another point in the national defense budget is trying to reaching military strategical goals and military relations. The usage of high technology in the army is also one of the other point, that affect directly defense budget. Structural upgrade and changes in the tactics and technological warfares rise the military budget too. Changes in the international security situations and Taiwan issue affected this budget rising.[63] (Xia Jiren, Circumstances Affecting China's Defense Budget Increase, Military Economics Study December 2000)

CONCLUSION

I intended to analyze PRC's military power, its level of technology and the defense budget in order to answer the question whether or not China is an international actor strong enough to constitute a threat for the World peace and a rival worth the United States' steel.

It is clear that recently the USA accepted China as a rival. The speech of USA's officers and Pentagon's reports to the Congress prove this fact. Pentagon said in an annual report to the Congress that China was modernizing its army in ways that provide it with the possibility of launching surprise attacks, potentially far from its borders last month. The report stated that China is acquiring better missiles, submarines and aircraft and they should more clearly explain the purpose of the military buildup that has made some people to see China as a threat[64].(http://www.huliq.com/24611/u-s-defense-department-says-chinas-military-budget-understated) American authorities use every occasion to declare that "China's military spendings is not peaceful and China should be transparent in its spendings" (like chairman of the Joint Chiefs of Staff General Peter Pace[65] (http://english.pravda.ru/news/world/04-06-2007/92726-us_general-0)).

It is certain that USA does not trust China. On the other hand China declares that their military spendings are peaceful. Chinese authorities declare that China has good relations with USA and is working actively with USA in most major international organizations, such as the United Nations and the World Trade Organization, as well as in regional organizations, such as the ASEAN Regional Forum and the Asia-Pacific Economic Cooperation forum.[66] (US Official: China's Emergence No Threat, China Daily 26.08.2004) China is working hard on its image on the international scene. It wants to present itself as a benefactor of African countries. It is arranging military exercises with Western countries. China took part in search and rescue exercises together with USA in 2006.

Another important issue that has to be noticed while describing the possition of China in the World are rumours about reciprocal espionage between China and USA. It is being said that China is transfering U.S. technology from Israel. Strong proofs for these suspections haven't been published yet, but voices confirming them are voluming up from many sides. Especially in the rocket industry the point of development that China

has reached is very high, and it was achieved very fast. Furthermore, relations between China and Israel were going well for the last two years. One should also look more closely at the relations between the U.S. And its strong ally, Turkey. The later was working lately on two missile projects named Project J and long range missile project.[67] (http://www.missilethreat.com/missilesoftheworld/id.96/missile_detail.asp)

The cooperation between Turkey and the States was not going well after the War in Iraq and the terorist actions of PKK teror organisation in Turkey. China was trying to use this opportunity to pull one of the U.S. Allies on its side. Turkey might be an important region of influence in a situation where United States and China would find themselves in opposite camps, constituing two poles of the World bi-polar system.

Lack of trust between PRC and USA occures clearly also in other areas. For example, after Chinese company Lenovo bought many of shares from the American IBM, there ware debates on wheather or not the Chineese company is permitted use the labs of IBM. Some persons tried to stop this share selling to Chinese Lenovo. Finally both sides agreed on the fact that Lenovo should not use IBM laboratories. The situation got more complicated when the U.S. States Department bought 15000 computers from Lebovo and opened every computer, searching bugs and spywares[68].(BBC News 27.03.2006 http://news.bbc.co.uk/2/hi/business/4849742.stm) Moreover, there are rumours that some NASA's research and development department's documents were stolen by the Chinese with the use of their computer spyware. It is suspected that the last five years informations were stolen. I can show the USSC decision at the Annual Report 2006 as a proof for preventing technological espionage missions. At the article, the report says "The commision recommends that the Congress examine the federal procurement process to ensure that all agencies security measures when puchasing computers."[69] (USSC Anual Report 2006)

But we can not say that the USA is innocent at this espionage game. On the 1st of April 2001 USA's AVACS collided with a Chinese fighter. The accident caused a small crisis between these two countries. All these events proove that there is a big lack of trust between these two countries.

In Today's world, that is not being given any possibility to direct conflict between these two countries. Politically, USA is trying to create a pressure on PRC to prevent PRC's

armament. It is certain that they have accepted each other as competitors and they see each other as the potential future powerful enemy.

That's clear that, PRC can not be forced to decrease its military spendings while USA has a much important military budget. In order to reach ballance both of these countries should disarm themselves at the same time.

With the today's Chinese research and development policy, PLA has reached the modern weapon technology, but there are some questions about the technology level between these polars. PRC has still time for it and the gap between NATO-based weapons and Chinese weapons is still large. It is true that in many fields China reached the modern technological level. Although PLA was successfully modernized, PLA is a very large army and it is very hard to spread these modern weapons to every section of the army. This would be to expensive for the Chineese military budget.

Finally, even Chinese armament is rising rapidly, still PRC is far from a threat for the global peace. The world nations should disarm synchronously. If China will not have an aggrassive leader such as Ahmedinejad or Hugo Chavez, there won't be any possibility of a direct conflict that could spread all over the World. On the other hand a conflict like that may occure if there are indirect conflicts that affect both above mentionned powers, coming from third countries like Taiwan, Iran or Venezuella. In my opinion, the possibility for the later scenario to become reality is very low. That is clear that China will be a superpower in the future but I do not estimate that this could happen in the near future. It would need more that a decade.

REFERENCES

Books

Medeiros S. Evan, Cliff Roger, Crane Keith, Mulvenon C. James, *A New Direction for China's Defence Industry*

Sutter G. Robert, *Chinese Policy Priorities and Their implications for the United States*.

Bijtan Zheng, *China's Peaceful Rise Speeches* 1997-2005.

Zhaoxing Li, *China's Foreign Affairs*

Kristensen M. Hans , S. Norris Robert, G. McKinzie Matthew ,*Chinese Nuclear Forces And US Nuclear War Planning*

Stokes A. Mark, *China's Strategic Modernization: Implications For The United States* September 1999.

Mulvenon C. James, *People's Liberation Army in the Information Age*.

Periodicals

Rosobor On Export, *Air Defence Export Catalogue*

Wang C. Shuan, *Building Societal Capital: Chinese In The U.S.*

Saunders C. Philip, *Chinese Views of its Military Modernization,* Monterey Institute of International Studies

O'Rourke Ronald, *China Naval Modernization: Implications for U.S. Navy Capabilities — Background and Issues for Congress,* Specialist in National Defence Foreign Affairs, Defence, and Trade Division

Virtual Information Centre, *China Taiwan Dispute Primer*

Jiren Xia, *Circumstances Affecting China's Defence Budget Increase,* PLA Institute of Military Economics

Braybrook Roy & Gander Terry, *Far Reaching Proposition,* Armada International 1/2002

Mcmeen R. Scott, *Field Artillery Doctrine Development 1917-1945*, MAJ, USA B.A., University of Nebraska, Lincoln.1979

Huntley L. Wade and Brown Robert, *Foreign Policy In Focus – Missile Defence & China*, Nautilus Institute

Foreign Policy In Focus - U.S. China Policy: Trade, Aid, and Human Rights

Huang Margaret, Kennedy F. Robert, *Foreign Policy In Focus - U.S. Human Rights Policy Toward China,* Memorial Centre for Human Rights

Grunfield A. Tom, *Foreign Policy In Focus - Reassessing Tibet Policy* , Empire State College

Foreign Policy In Focus - Asia/Pacific Peace and Security Issues January 1997

Nolt H. James, *Foreign Policy In Focus - U.S.-China-Taiwan Military Relations*, Senior Fellow, World Policy Institute April 2000

Gershman John, *Foreign Policy In Focus - The Big Issues in U.S.-China Relations: The Silent Debate*, Asia/Pacific Editor, Foreign Policy In Focus, November 2000

Bickford Thomas, *Foreign Policy In Focus – Myths and Realities of China's Military Power* April 2001

Nolt H. James*, Foreign Policy In Focus - China in the WTO: The Debate*, World Policy Institute December 1999

Foreign Economic Relations Board- Turkey China Report

Gershman John, *Foreign Policy In Focus - Back to the Future: The Bush Administration and China*, Asia/Pacific Editor, Foreign Policy in Focus , January 2001

Gershman John, *Foreign Policy In Focus - Arms Sales to Taiwan: A Flashpoint Issue*, March 2001

Nolt H. James, *Foreign Policy In Focus - Assessing New U.S. Arms Sales to Taiwan* , World Policy Institute, April 2001

Gershman John, *Foreign Policy In Focus- Chaos Rules! Bush Administration Policy Toward China* , May 2001

Gershman John, *Foreign Policy In Focus - We Have Seen the Enemy, and It Is China* , May 2001

Cheng Li, *Foreign Policy In Focus - China's Political Succession: Four Myths in the U.S.*, May 2001

Human Rights Watch Memorandum To CCW Delegates A Global Overview Of Explosive Subnimitions Prepared for the Convention on Conventional Weapons (CCW) Group of Governmental Experts on the Explosive Remnants of War (ERW), May 21-24, 2002

Lin E. Joseph, *In a Forth night,* China Brief Journal October 25, 2006

Hartzog W. William, Van River K. Paul, Holder G. S., Keys E. Ronald, *J Fire Multi-Service Procedures for the Joint Application of Fire-power*

Blasko J. Dennis, *PLA Ground Forces: Moving Toward A Smaller, More Rapidly Deployable, Modern Combined Arms Force*

Zhao Chen, Ming Lu, Ji Yan, *Reform, Interaction of Policies, and Economic Growth: Evidence from China's Provincial Panel Data*

Ferris L. David, *The Books Of Tanks*

Hawkins F. Charles, *The People's Liberation Army – Look To The Future*

Jagannath P., *The Modernization Drive of the PLA and the New Defence White Paper*

USSC Annual Report 2006

Web Sites

http://www.asianresearch.org/ - 12.02.2007
http://www.sinodefence.com - 26.03.2007
http://www.strategycenter.net/ - 26.03.2007
http://www.chinadaily.com.cn/ - 25.02.2007
http://www.fas.org - 22.03.2007
http://www.cato.org - 11.04.2007
http://www.chinese-outpost.com - 17.04.2007
http://army-guide.com - 15.04.2007
http://www.deagel.com - 12.03.2007
http://www.inetres.com - 21.02.2007
http://www.emeraldesigns.com - 22.02.2007
http://www.missilethreat.com - 26.03.2007
http://www.army-technology.com - 24.03-2007
http://www.scaic.com.cn - 05.04.2007
http://www.idds.org - 08.04.2007
http://www.navyleague.org - 16.02.2007
http://www.huliq.com - 18.01.2007
http://english.pravda.ru - 21.02.2007
http://news.bbc.co.uk - 27.03.2006