T-50 (PAKFA)

SUKHOI AIRCRAFT OVER SOUTH-EAST ASIA COUNTRIES

Within the period from 1999 up to 2010 around 450 Sukhoi aircraft were exported to different countries all over the world, and a good half of this amount was purchased by the South-East Asian countries: China, India, Indonesia, Malaysia, Vietnam, etc.

The demand for Russian planes produced by the Sukhoi company is well easily to explain as the Russian fighter is characterized by better power-to-weight ratio, which is much needed in highly-maneuverable "dog fighting"; self-contained tactical employment capabilities, that play significant role when an aircraft needs to fulfill a combat task without intelligence from ground command and control systems; supreme wing-drag ration, which increases much aerodynamic performances at hypersonic speeds, etc. Last Sukhoi aircraft, such as Su-30MK, are fitted with thrust vector control engines that allow to execute such aerobatics as "cobra", "stall turn", "cobra with angle of attack up to 180 degrees", etc. It is worth to mention that all these aerobatics are in use not only during different air shows but also in combat, especially in "dog fighting" and counter missile maneuvers. And last but not least, the Russian manufactured aircraft of the Sukhoi family are characterized by high reliability and reasonable price for hardware. Along with above mentioned advantages the Russian manufacturers keep an eye and constant develop service and after-sale facilities which also increases competitiveness on the world market of aircraft exporters. In these latter days importing countries make demands on producers of aircraft that they should transfer technologies with purchased hardware. Russia and Sukhoi company in particular have accumulated extensive experience in this field, and it is worthy of note that among the first countries which exported the Su aircraft and received technologies were South-East Asia states China, which purchased Su-27 and India, which acquired Su-30.

CHINA: PURCHASED, LICENSED, CLONED

In 90-s China, along with India, was the main importer of the Russian made military hardware, including the Sukhoi aircraft Su-27 and Su-30 (according to some prominent Russian experts in military economy, very export of the aircraft to China allowed the Sukhoi company to stay afloat at that time). All in all 178 fighters of Su-27/Su-30 type were delivered to the People's Republic of China, including 38 single-seat Su-27SK fighters and 40 combat trainer aircraft Su-27UBK, 76 multi-purpose fighters Su-30MKK and 24 fighters Su-30MK2. Taking into account additional 105 Su-27SK aircraft that were manufactured under the license agreement between the Russian Federation and China at the factory in the city of Shenyang, the total number of aircraft of the Sukhoi family is 283.

Sukhoi aircraft Su-27 SKM

Looking at these figures one should not flatter oneself. Today China gradually curtails the cooperation with Russia in the field of military hardware deliveries. The reason is that Chinese Military-Industrial Complex has been showing good results last years and along with its locally manufactured military hardware it demonstrates good abilities to copy Russian made aircraft.

Talking about numerous of copies of foreign made military hardware and equipment it is worth to mention that China uses production licenses to create helicopters and airplanes. France's helicopter SA-365 Dauphin 2 has been upgraded to the WZ-09 combat chopper. However, the clearest example of "licensed copying" is the Chinese J-11 fighter jet, based on Russia's Su-27. In 2006, Moscow and Beijing struck a deal on licensed production of the Su-27SK (Chinese designation J-11A). The agreement only provided for licensed assembly of components provided by Russia. The Chinese, though, studied the aircraft while assembling it and ended up producing a similar fighter, the J-11B, only with a Chinese-made engine and avionics.

The exceptions are the RD-93 aircraft engine which is still purchased by China for equipping light aircraft FC-1 (JF-17) and the AL-31FN engine which is purchased to substitute old engines of Su-27 and equip the J-10 aircraft.

The desire of the Chinese to keep on coping especially Russian aircraft led to a deadlock in negotiations concerning the purchase of the Su-33 (NATO codename: Flanker-D) carrier-based fighter. The SU-33 is a variant of Sukhoi's SU-27 with forward canards, folding wings, an arrester hook, a reinforced structure, and other modifications that help it deal with carrier operations and landings.

At the beginning China intended to order for two KnAAPO produced aircraft worth $100 million for trials. However, it did not meet the expectations of Russia, fairly assuming that when Chinese designers and pilots check the flight tactical characteristics they will clone the plane. Later on, Beijing suggested that Russia should deliver a set of 12-14 air-

Example of "licensed copying" is the Chinese J-11 fighter jet, based on Russia's Su-27

Deliveries of Sukhoi Aircraft to China				
Delivered	**In Service**	**Possible Acquisition**	**First Delivered**	**Last Delivered**
3-27SK; 40×Su-27UBK; 76×Su-30MKK; 24×Su-30MKK2	~36×Su-27SK; ~40×Su-27UBK; ~76×Su-30MKK4; 23×Su-30MKK2	2+48×Su-33	Su-27SK/UBK in June 1992); Su-30MKK in 2002; Su-30MKK2 in February 2004	August 2004

planes to equip its first carrier. However, Russian side considered that offer unacceptable as there was no profit to start up a manufacturing line taking into account the number of aircraft that were planned to be acquired. In the end of 2006 Russian state-run weapon exporter Rosoboronexport was about to complete negotiations with China to deliver up to 48 Sukhoi SU-33 carrier-based fighter aircraft in a purchase deal reportedly worth $2.5 billion.

The aircraft was supposed to be able to operate from the former Soviet aircraft carrier Varyag, which China acquired from the Ukraine in 1999 and is currently being refitted at the Dalian shipyard. However in March 2009, it was reported that negotiations on the deal had collapsed over fears that Beijing could produce cheaper export versions of the aircraft with Chinese avionics and systems, in similar fashion to the J-11B aircraft.

By mid-2009, the relationship with Russia had improved and China could procure the Su-33, Su-34 and Su-35. As part of the deal, Russia is offering further cooperation by enabling China to produce the Su-35 under license. It now appears China has received help in developing the carrier-borne J-15 based on the Su-33, with Chinese avionics to fulfill its carrier aviation requirements instead of procuring Russian built naval Flankers.

It becomes clear that in maximum ten years China will substitute all Sukhoi made aircraft to domestic ones. At initial stage J-11B is supposed to replace all Su-27SK type aircraft. As far as Su-27UBK combat trainer aircraft is concerned it seems that the Chinese market for Russian producers is almost closed

Sukhoi SU-33 carrier-based fighter aircraft

Sukhoi SU-30MKI fighter aircraft

as in 2008 Chinese engineers and designers were able to create around for planes J-11BS that are now under tests. No doubts that these tests are over with success.

Su-30MKK and Su-30MK2 fighters are known to be based on Su-27UBK, so according to experts it takes China around 15 years from today to clone these Russian made multi-purpose fighters.

Today it is not so clear what happens with Su-33, carrier-based version of the Russian fighter, which China was not able to purchase. Some attempts were made in terms of creation a domestic version under designation J-15. However, it shows average results that cannot satisfy military and political leadership of People's Republic of China. However, Chinese designers and engineers harbor hopes that they will succeed with this version of the aircraft by 2020 or even earlier.

Perfectly clear the situation is around T-50, fifth-generation fighter. According to Russian officials, there are now and probably will not be in future plans to deliver T-50 to China. First of all it is necessary to say that as soon as India is deeply involved into this project there are no ways of such

Deliveries of Sukhoi Aircraft to Malaysia

Delivered	In Service	Possible Acquisition	First Delivered	Last Delivered	Units of IAF
18×Su-30K (Su-30MK);	~100× Su-30MKI	~80×Su-30MKI (HAL);	Spring 1997 (Su-30K);	1999 (Su-30K);	20th Squadron Ligthnings;
32×Su-30MKI; 1xHAL Su-30MKI		~6×Su-30MKI (Irkut);	22 June 2002 (Irkut Su-30MKI);	December 2004 (Irkut Su-30MKI);	12th Wing, Pune - Lohegaon AFS; 24th Squadron Hunting Hawks;
		40×Su-30MKI (HAL)	December 2004 (HAL Su-30MKI);	2008 (Irkut Su-30MKI; Su-30K replacements);	15th Wing, Bareilly AFS, Uttar Pradesh;
			late 2007 (Irkut Su-30MKI, Su-30K replacements)	~2017-2018 (HAL Su-30MKI)	30th Squadron Rhinos, Bareilly AFS, Uttar Pradesh; 8th Squadron Pursoots; 31st Squadron Lions, Jodhpur Air Base

BrahMos Aerospace was established in 1998. It is a Russian-Indian joint venture, which produces and sales the BrahMos supersonic missile. At present the type of sea and land launched missile has been successfully tested and put into use in the Indian Army and the Navy. The missile is in use since November 2006 by Indian Army and Indian Navy. The Indian Air Force units are expecting "Brahmos" in two years

Technical Characteristics of the "Brahmos" missile	
Type	**Cruise missile**
Weight	3,000 kg 2,500 kg (air-launched)
Length	8.4 m
Diameter	0.6 m
Warhead	300 kg Conventional semi-armour-piercing
Engine	Two-stage integrated rocket/ramjet
Operational range	290 k
Speed	Mach 2.8-3.0
Launch platform	290 k

an aircraft to the Chinese market. Second, China itself is designing the fifth-generation fighter (according to some Chinese sources today the designers suffer big problems with the engine for the fifth-generation plane).

INDIA: RUSSIA'S STRATEGIC PARTNER

The military cooperation between Russian and India has been developing since the middle of the last century. This fact affords ground that the collaboration between two countries is assessed as a strategic partnership. Within the period of such cooperation there were not only large supplies of military hardware, including different types of aircraft, but also transfers of cutting edge technologies and development of under license manufacturing.

On 30 November 1996 the Russian Federation and the Republic of India signed a contract for the delivery of 50 Su-30MK multi-purpose twin-seat fighters, also known as Su-30MKI (I for India). The first eight aircraft had capabilities as the Su-30K, the other ten had already some of the multi-role improvements added.

The other 32 were Su-30MKI standard aircraft upgraded with thrust vectoring AL-31FP engines, improved avionics and canards. The first batch of ten Su-30MKI aircraft was delivered on 22 June 2002. Second batch counted 12 aircraft. The third and final batch of the initial order produced by Irkut consisted of ten aircraft and was delivered during December 2004. The Indian Air Force (IAF) has 140 Su-30MKI aircraft on order for production under license by Hindustan Aeronautics (HAL). The initial batch of 26 aircraft was produced from assembly kits provided by Irkut, followed by production from components. At HAL's Nasik plant, production started in 2004 and the first locally produced Su-30MKI was rolled out on 28 November 2004 and delivered in December 2004. Production is expected to peak at around 12 aircraft per year with final deliveries in 2017-2018. The Su-30MKI will become the mainstay of the Indian Air Force.

The Su-30K aircraft were originally planned to be upgraded to MKI standard, but this plan was abandoned for financial reasons. Instead India ordered 18 additional new-built Su-30MKI from Irkut, putting the number of aircraft fully produced in Russia at 50. Russia is said to buy back the Su-30Ks for $12 million per aircraft, planning to upgrade them to Su-30KN and resell them to Belarus.

In December 2006, the Defense Acquisition Council granted approval for 40 additional Su-30MKI to be produced by HAL following completion of the standing order for 140 Su-30MKIs. However the contract is reported to be in demand of approval by the Finance Ministry and Cabinet Committee on Security and negotiations with Russia have to be finalized.

The Indian Air Force has to date lost two Su-30MKIs. The first loss occurred on April 30, 2009. The crew ejected, but the navigator died from his injuries. The second crash happened on November 30, 2009. Both crew members safely ejected.

According to Mikhail Pogosyan, the head of the United Aircraft Corporation (UAC), the most successful joint project with India is Su-30MKI. Today around one hundred airplanes of this type are in service of the Indian Air Force. In accordance with the license plan, the total number of the fighters is going to be significantly increased. In Moscow the figure of two hundred airplanes of Su-30MKI is much spoken.

Along with increasing the numbers of aircraft Russian specialists pay attention towards modernization of Su-30MKI. First of all, the avionics is said to be upgraded. After

Sukhoi SU-35 fighter aircraft

that the modernization plan stipulates the update of a radar and increase of capabilities to engage air, ground and sea targets. Today Russian companies Research and Development Enterprise "Mashinostroeniye" (is a rocket design bureau), State Corporation "Rosoboronexport", Design Bureau "Sukhoi" and Corporation "Irkut" are negotiating with Indian Ministry of Defense, Hindustan Aeronautics Limited and Brahmos Aerospace the issues concerning the possibilities of the aircraft modernization to equip it with the "Brahmos" supersonic cruise missile.

Last year in Malaysia, during the Defence Services Asia — 2010 Director General of Joint Venture "Brahmos Aerospace" Sivathanu Pillai said that India would arm around 40 Su-30MKI with the "Brahmos" supersonic cruise missile. He also stressed that in case the tests of equipping the aircraft with the missile are successful, it turns the fighter into absolutely unique aerial vehicle.

According to information from public service, the tests of the first aerial based "Brahmos" supersonic cruise missile are ongoing in India. As far as the first launches from the Su-30MKI are concerned, they are reported to be conducted in 2012.

The missile is in use since November 2006 by Indian Army and Indian Navy. The Indian Air Force units are expecting "Brahmos" in two years.

Cooperation with India in the field of creation of the Fifth Generation Fighting Aircraft (FGFA) is even more ambitious than modernization of Su-30MKI. In December 2010 a joint project aimed at creation of a conceptual design of FGFA was signed by Russian and Indian officials. According to officials from the "Sukhoi" Design Bureau the design of the Fifth Generation Fighting Aircraft is absolutely unique level of mutual cooperation. It is a challenge for other exporters of military hardware who currently offer at the best case the transfer of technologies.

Deliveries of Sukhoi Aircraft to Indonesia

Delivered	In Service	Possible Acquisition	First Delivered	Last Delivered	Units of IAF
18×Su-30MKMI	18×Su-30MKM	MiG-35, Su-30MKM, Su-35*	18 June 2007	17 August 2009	11th squadron, Gong Kedak AF base

** The Royal Malaysian Air Force plans to issue a new request for proposals regarding the acquisition of new multi-role combat aircraft to replace the current MiG-29N fleet, as part of the 2011-2015 Five-Year Plan. Rosoboronexport would propose the MiG-35, more Su-30MKM, or Su-35*

Sukhoi SU-30MKM fighter aircraft

Deliveries of Sukhoi Aircraft to Vietnam

Delivered	In Service	Possible Acquisition	First Delivered	Last Delivered	Units of IAF
2×Su-27SK; 2×Su-30MK; 3×Su-27SKM; 3×Su-30MK2	2×Su-27SK; 2×Su-30MK; 3×Su-27SKM; 3×Su-30MK2	Possible delivery of unknown number of Su-27SKM	27 August 2003	27 September 2010	11th Air Squadron, Saltan Hassanuddin Air Base, Makassar, South Sulawesi

The bulk work has been executed in 2011. By the mid of 2012 all necessary activities concerning the beginning of drawing up the conceptual design of FGFA are planned to be concluded.

Today India plans to purchase 214 Fifth Generation Fighting Aircraft. According to Norman Anil Kumar Browne, Commander-in-Chief of the Indian Air Force, 166 fighters will be single-seat and 48 will be two-seater aircraft. Based on initial plans, it is safe to assume that single-seat fighters are going to be manufactured in Russia and two-seaters in India by Hindustan Aeronautics Limited.

According to public sources, Indian specialists were able to get together in a question concerning future power plant which is supposed to be installed at Fifth Generation Fighting Aircraft. Probably it will be "Object 117" which is more powerful than AL-41F1 engine that Russian specialists plan to equip T-50 at initial stage. In this view the power-to-weight ratio can be increased by 10-15% in comparison with current version of Russian T-50.

MALAYSIA: CHOOSING THE MOST SOPHISTICATED MULTI-ROLE AIRCRAFT IN SOUTHEAST ASIA

Malaysia is considered one of the oldest partners of the "Sukhoi" company which got familiarized with Russian made aircraft of the Su family in 2003. The historical agreement on delivering 18 multi-purposes Su-30MKM to the Malaysian Air Force was signed during an official visit to Kuala Lumpur of Russian high-ranking delegation headed by then Ministry of Defense Sergei Ivanov. The $900 million contract stipulated that all fighters were supposed to be delivered to Malaysia during five year period. Then the Russian Minister pointed out that the worth of the deal had not played so big role, according to him, by signing the contract the two countries "build up the future technical-military cooperation". S. Ivanov also underlined that terms of the deal had stipulated upcoming modernization and technical maintenance of the purchased aircraft.

The first shipment of two out of 18 Su-30MKM fighters was conducted in June 2007. It is necessary to mention that all terms of delivery were fulfilled and the shipment was done duly in time. At the same time State Corporation "Rosoboronexport" arranged all necessary ground equipment at the "Gong Kedak" Royal Malaysian Air Force base and settled the needed comprehensive training program for ground technicians in order to provide technical maintenance for just-arrived aircraft.

The second pair arrived in July/August 2007. During this time three Sukhoi test pilots were in Malaysia to test fly the reassembled aircraft and undertake RMAF pilot conversion. The first five month conversion training programme started in July 2007. By December 2007, Malaysia had taken delivery of six Su-30MKMs and six crews were trained on the aircraft. Malaysia plans to train 72 officers as pilots and weapons system officers for the Su-30MKM, some of which may undergo training in India. Also Malaysian pilots and ground specialists trained in Russia reportedly in early 2004 where four pilots and two weapons system officers were trained. Later they became instructors.

The eighteenth and last aircraft arrived on August 17, 2009, along with the other three aircraft of the final batch. Malaysian Su-30MKMs carry serials M52-01 thru M52-18.

Malaysian Air Force Command wants to purchase more Sukhoi aircraft. During the visit of Malaysian Defense Minister Ahmad Zahid Hamidi to the Irkut aviation plant (the plant produces Su-30MKI fighters for India) the matter of acquisition of another batch of 18 Su-30MKM multirole fighters was widely discussed. Moreover according to reliable sources, the Malaysian Air Force officials speak in favor of the "Brahmos" supersonic cruise missile that has good chance to be installed on the Malaysian fighters. One such aircraft would cost Malaysia about $50 million, future maintenance included.

It is worth to mention that in 2009 during LIMA–2009 event the chief of the official delegation of IRKUT Viktor Lichaev heralded that a service centre would be built in Malaysia. He did not specify the mission area of the service center, however, he stressed that it could be wider in case the Malaysian Royal Air Force would acquire more fighters of Su-30MKM.

On May 24, 2007 a presentation of Su-30MKM took place at the Irkut aviation plant. In an interview to the National News Agency "Bernama" Chief of Air Force Gen Datuk Seri Azizan Ariffin defined that day as a "historical date". According to him, Malaysia acquired from Russia "the most sophisticated multi-role aircraft in Southeast Asia".

INDONESIA: DELIVERIES AHEAD

In 2003 the government of Indonesia ordered two Su-27SK single-seat and two Su-30MK multi-purpose twin-seat aircraft to replace the ageing and grounded fleet of 20 A-4/TA-4 Skyhawks of the Tentara Nasional Indonesia — Angkatan Udara (TNI-AU — Indonesian Air Force). The order was part of a medium term plan to establish four new fighter squadrons before 2010; however these plans have been scaled down.

The Indonesian Su-30MK twin-seat aircraft were first reported to be designated Su-30KI, confusingly this designation had already been used for a new single-seat version specially developed for Indonesia. Indonesia had already signed a contract for 24 of these single-seats Su-30KI back in September 1997. However the contract was cancelled in 1998 as a result of the Asian economic crisis.

Indonesia's Su-30MKs are KnAAPO built examples similar to China's Su-30MKK. The Indonesian Su-30MK are sometimes also referred to as Su-30MKI or Su-30MK(I), with the I clearly standing for Indonesia, and not referring to India's Su-30MKI version built by Irkut.

TACTICAL CHARACTERISTICS OF SUKHOI SU-30 AND SU-30M FIGHTER AIRCRAFT

Design
SU30M has a two seat cockpit. This two-engine fighter is fitted with canards to increase lifting effectiveness and enhance maneuverability of the aircraft.
Avionic
Su-30M has more accurate navigation system, a TV command guidance system, a guidance system for anti-radiation missiles, a larger monochrome TV display system in rear cockpit for ASM guidance, and ability to carry one or two pods, typically for laser designation or ARM guidance in association with Pastel RWR and APK-9 data link. Western avionics, guidance pods and weapons can be fitted optionally. Sextant Avionique package for Indian aircraft includes VEH3000 or Bop HUD, Totem or Sigma 9SN/MF INS/GPS and liquid-crystal multifunction displays.
Propulsion
The SU-30M power plant incorporates two Saturn AL-31F afterburning low-bypass turbofan engines. Two AL-31F turbofans, each rated at 12,500 kgf (123 kN, 27,550 lb) of full afterburning thrust ensures Mach 2 in level flight, 1,350 km/h speed at low altitude, and a 230 m/s climbing rate. SU-30 multi-role fighter can fly at the maximum speed of Mach 2.0 (2,120 km/h) and has a service ceiling of 17,300 m (56,800 ft). The combat range of the aircraft on internal fuel is 3,000km. With a single in-flight refueling procedure the combat range is extended to 5,200 km.
Armament
One 30 mm GSh-301 gun, with 150 rounds; 12 external stations for more than 8,000 kg (17,635 lb) of stores, including AB-500, KAB-500KR and KAB-1500KR bombs; B-8M-1 (20x80 mm) and B-13L (5v130 mm) rocket packs; 250 mm S-25 rockets; up to six R-27ER (AA-10C "Alamo-C"), R-27ET (AA-10D "Alamo-D") or RW-AE (R-77; AA-12 "Adder1") medium-range AAMs; or two R-27ETS and six R-73E (AA-11 "Archer1") IR homing dose-range AAMs; and a variety of air-to-surface weapons such as four ARMs, six guided bombs or short-range missiles with TV homing, six laser homing short-range missiles, or two long-range missiles with TV command guidance; these include Kh-29L/T (AS-14 "Kedge"), Kh-31A/P (AS-17 "Krypton") and D-9M probably Kh-59M (AS-18 "Kazoo") with APK-9 pod or single Raduga 3M80E supersonic anti-ship missile.
Accessories
The SU-30 integrated electronic warfare system includes a Tarang radar warning system, indigenously produced by the Indian Defense R&D Organization (DRDO), and systems supplied by Israeli manufacturers. The SU-30 is equipped with a flight refueling probe and a buddy-buddy refueling system.

In June 2006, it was announced that Indonesia planned to procure six additional Sukhoi fighters from Russia. It was also made public that the four aircraft procured in 2003 had been inactive awaiting upgrade of their communication systems, which were incompatible with the Indonesian systems in use, and that no weapons were bought.

On 21 August 2007, on the opening day of MAKS–2007, Indonesia signed an agreement with State Corporation "Rosoboronexport" for the purchase of three Su-27SKM upgraded multi-role single-seat export variants and three Su-30MK2 two-seat multirole derivatives, similar to those supplied to China, Vietnam and Venezuela. On the same day, Sukhoi also revealed it had signed a Memorandum of Understanding with Indonesia on the delivery of the six fighters. The value of the contract was reported to be 300 million American dollars. More than a year later, the order was formalized in November 2008, when Indonesia had finally secured sufficient financing to cover the deal.

Two new Su-30MK2s arrived on board of An-124 on December 26, 2008, at Saltan Hassanuddin air base, Makassar. The aircraft, with serials TS3003 and TS3004, were first flown from Saltan Hassanuddin on January 6, 2009, by a Russian pilot to test all on-board systems. The third and final Su-30MK2 (serial TS3005) also arrived by An-124 at the base on January 17, 2009. Following re-assembly and test flights, TS3005 was delivered on January 25, 2009. All three Su-30MK2s were subsequently formally handed over to the TNI-AU on February 2, 2009.

The three Su-27SKM single-seaters were delivered in September 2010, with the first two on September 10 and the final example on September 16. After the official handover on September 27, this completed the 2007 order.

The three new Su-30MK2 two-seaters and three Su-27SKM single-

Tactical Characteristics of Su-27	
First Flight	May 20, 1977
Service Entry	1984
CREW	1 pilot
DIMENSIONS	
Length:	21.94 m
Wingspan:	14.70 m
Height:	5.92 m
Wing Area:	62.0 m^2
WEIGHTS	
Empty:	17,700 kg
Typical Load:	22,500 kg
Max Takeoff:	30,000 kg
Max Payload:	8,000 kg
PROPULSION	
Powerplant:	two AL-31F after burning turbofans
Thrust:	245.16 kN
PERFORMANCE	
Max Level Speed:	2,500 km/h at 11,000 m; Mach 2.35
Service Ceiling:	18,000 m
Range:	3,900 km; with max payload - 1,500 km
g-Limits:	+8
ARMAMENT	
Gun:	one 30-mm GSh-301 cannon (149 rds)
Stations:	8 × external hard-points and 2 wing-tip-rails
Air-to-Air Missile:	R-60/AA-8 Aphid, R-27/AA-10 Alamo,R-73/AA-11 Archer, R-33/AA-9 Amos
Bomb:	free-fall, cluster bombs
Other:	rocket pods, ECM pods

Sukhoi SU-27 fighter aircraft

seaters joined the two Su-27SK single-seaters and two Su-30MK two-seaters operated by the TNI-AU's 11th Squadron Udara at Saltan Hassanuddin air base. The further cooperation with Indonesia appears to be promising. Today Indonesian Air Force possesses 10 Sukhoi fighters and both theoretically and practically the fleet should compose of 16, in other words it should be organizational squadron. Only in this case one can say about deterrent force capable to repel any attack or fulfill any combat mission. On the sidelines of INDO Defence 2010 Expo and Forum Indonesian Army (TNI AD) Chief of Staff General Agustadi Sasongko Purnomo said that his officers had had good experience of utilization of Soviet made military hardware since 60-s of the last century. He also acknowledged that experience taught him that Russian aircraft have very good combat strength.

VIETNAM: THE TIGER NEEDS CLAWS

Vietnam became the second Asian country to purchase the Su-27 aircraft. The first batch was delivered in May 1995, shipped from Russia, and included five Su-27SK fighters and one Su-27UBK. In December 1996 an additional batch of two Su-27SK airplanes and four Su-27UBKs were ordered, and the first were delivered in October 1997. One Su-27SK has been lost.

In November 2003 a contract was signed for four slightly modified derivatives of the production Su-30MK2 two-seat multirole fighter, which was developed for China. Modifications included an upgraded communications suite and improved ejection seats. In November 2004 KnAAPO shipped four Su-30MK2V fighters to the Vietnamese People's Air Force (VPAF).

In January 2009, another contract was signed for eight Su-30MK2V fighters, previously reported as 12. Delivery in two batches of four in 2011, the first was delivered in June. Announced in June 2009, Vietnam planned a further 12 Su-30MK2Vs. The order was confirmed on February 10, 2011.

The VPAF Sukhoi aircraft are based at Bien Hoa Air Base, Dong Nai, and operated by the C35 Fighter Regiment. When the additional Su-30MK2Vs are delivered, the Su-27SK/UBK are to be moved to Da Nang Air Base.

According to public sources, 20 Russian made fighters Su-30MK2 will be produced and delivered in Vietnam by the end of 2011.

According to the Russian Ministry of Defense the Su-30MK2 aircraft should undergo some changes and be equipped with combat systems mounted on the aircraft Su-30MKM.

With this aircraft, the Vietnamese air force is equipped with one of the most modern military fighter aircraft in Asia.

The Russian firm Sukhoi could also install a maintenance center in the country. Vietnam has experience in aircraft maintenance including the Russian Su-27 and Su-22. The Vietnam would be interested to acquire 30 additional Su-30 aircraft After delivery of the new Russian fighter planes, the Vietnamese air force should have a total of 253 fighter aircraft.

Anton Chernov
Military and Political Analyst